

**To Blend or not to Blend from an Instructors' Perspective: Introducing  
Blended Learning in Medical Education in a Gulf Cooperation Council Country**

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### Abstract

This study looks at instructors' perceptions of blended learning (BL) at a Medical School (MS) in one of the Gulf Cooperation Council (GCC) countries. The study also looks at the effects of instructors' perceptions on implementation of BL in the classroom. And the effect of student perspectives on instructors' perceptions of BL. The study is important as it looks into the impact and effectiveness of technology in the classroom, from an instructor's perspective in the GCC. The study also captures how an instructor's experiences with technology affect their practice in the classroom. The target populations of the study are eight instructors and five students. Data analysis starts with narratives of each instructor to give the reader an idea of their background, and technology usage preferences. The main methods of data collection are instructors' interviews, class observations, and one student focus group discussion (FGD). A thematic analysis was carried out on the notes collected. The analysis of the study is carried out in light of the technology acceptance model (TAM). Findings of this study confirm that perceived ease (PE) of use and perceived usefulness (PU) of technology do contribute to acceptance of technologies. Effect of TAM extension variables content quality (CQ), facilitating conditions (FC), anxiety (ANX), lack of experience (EXP) was evident among the instructors. Findings of this study showed that student perspectives have an effect on instructors' perceptions of blended learning. A recommendation is to add student perspectives as an external variable to TAM extensions.

It is concluded that the BL approach depends on the individual instructor and can alter from instructor to instructor, depending on personal preferences, past experiences, training, and support. The general perception of the BL approach expressed by the

instructors at MS was positive. Based on the findings, it was also revealed that instructors can have negative perceptions of BL, if their expectations are not met.

It is also concluded that MS lacked planned implementation of the BL approach institution wide. A recommendation for MS is to come up with a plan to implement BL institution wide, after studying the strengths and limitations of the BL approach. While the findings of this study revealed that instructors perceptions of BL may improve course instruction, and student engagement, more research is required to measure the direct relationship of BL, students, and instructor expectations.

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## Chapter 1 - Introduction

### 1.1 Background

Educational institutions aim to prepare, teach and develop students so that they have the skills to enter society and contribute towards development and knowledge. In the past century, the most significant change in the way we teach is related to the introduction of technology in the classroom (Bowyer & Chambers, 2017). On a broad scale, this study is about the use of technology in the classroom and instructors perceptions of technology, impact of instructors perceptions on implementation of BL in the classroom, and impact of students perspective on instructors perceptions of BL. Application of innovations and new technological tools are important for any institution to grow. However, it is important to take into consideration instructor's perception of innovations. According to Keengwe and Kang (2012), teaching with the support of technology along with traditional face-to-face teaching methods has been defined in the literature using various terms, one of them being blended learning (BL).

This study looks at the perceptions of BL of entry level year instructors, at a Medical School (MS) based in the Middle East. The entry level years compromise of three years of undergraduate studies followed by four years of medicine. The institution was established to cater to the needs of the local population. The aim of opening a medical school in the region was to produce world-class physicians and medical practitioners who would benefit the community locally and internationally. Although the institution was established almost nineteen years ago, not many local students had graduated from the School till 2014 (Permanent Population Committee, 2013). Moreover, little research has been done to identify the reasons for this. The institution believes that the main issue is at the entry level where students are



admitted. After a few years of operation, a foundation year was established specifically to recruit local students only.

A transition year between school and university can be helpful for students to grow and adapt. Bishop and White (2007) carried out a study in Lehigh University Pennsylvania. In their research, they introduced online courses to pre-college students. Their argument was that when students enter college, they have a busy schedule and providing further assistance could make it worse and thus have a negative effect on the students. Consequently, their research showed that the performance of students in the online course improved significantly with each course cycle.

After considering many other factors, the management of MS and other stakeholders decided to add a foundation year before the two years of undergraduate studies. The foundation year is a one-year program specifically designed to prepare students for entering medical school. The target population for this program is local students who are academically strong and meet admissions requirements. However, they might need another year to improve their language or study skills. Students are taught basic science, maths and English courses by faculty. It is thought that this will prepare and equip them with better study and critical thinking skills.

## **1.2 About the Researcher**

After graduating as an engineer, I started working as an experimental physics teaching assistant at my institution in 2002. Observing students in the labs, I always enjoyed how student learning improved while working hands-on with equipment rather than being taught exclusively face-to-face in the classroom. A positive response from the students motivated me as an instructor. I always found the idea of my personal motivation based on student success to be interesting, and something that

could be studied further. Being in the field of education, I also wanted to see how universities recruit students. Therefore, I moved to the Office of Student Recruitment at my institution in 2011. With a combination of experience in teaching and recruiting students, I developed a deep interest in studying instructors perceptions based on innovation in teaching practices.

I have always been interested in studying the effects of teaching tools used to enhance learning. One of the main reasons for pursuing my studies further was to study the effects of interventional tools used to enhance learning. When I started searching for degree programs, I was working in the physics laboratory where we would use advanced technological tools to make physical measurements. I noticed that using technological tools did change the whole teaching environment, which inspired me to formulate my research topic. Once I started my literature search, I found that there was ample information on student perceptions of BL. However, there was a gap in the literature and a need to do more research on instructors perceptions of the BL approach. With the rapid advances in technology, institutions or policymakers can make assumptions about the effectiveness of using technology in the classroom (Conole, 2002). Therefore, they do not see a need for carrying out further research on instructors perceptions.

### **1.3 Context of the Study**

The first medical school in the GCC countries was opened in Saudi Arabia in 1969 (Abdulrahman et al, 2012). Medical schools and medical education have not been around in the GCC countries for too long and there is a clear need for more research to be done in the region on instructors development and instructors perceptions (Algahtani et al, 2020).

This study was carried out at a medical school (MS) in one of the Gulf Cooperation Council (GCC) countries. The MS has a unique environment where the instructors come from various cultural and teaching backgrounds. Most of the instructors are from Europe, United States of America, and the United Kingdom. The instructors have experience in teaching different curriculum in their countries. At the MS, and in Universities located in the GCC these educators come from diverse teaching and cultural backgrounds and teach a culturally diverse group of students (Austin et al., 2014; Romanowski & Nasser, 2014). This creates a unique research environment. This study of instructors at MS will add to a gap in literature on instructors perceptions of BL in this specific context (Monteiro, 2019).

The student population is from 35 different countries, and the MS is a coeducational institute. The overall number of female students are more than the male students. The average admitted female population for entry level year students at MS is higher than the male population. The average admitted female population is approximately 60% between 2017 – 2020. A higher percentage of female population could be due to the role of women in the GCC countries, that has evolved over the past years. They are encouraged to pursue higher education and play a role in the job market (Tamim, 2018). Additionally, “in the Middle East region, the use of BL is still in its early stages” (Tamim, 2018, p.70). Referring to BL in the Middle East Tamim says that “unfortunately, there is a shortage of studies addressing the various aspects of BL in this context.” (Tamim, 2018, p.71). In this context studying the instructors perceptions of the BL approach in their classrooms, will contribute to literature and open avenues for further research (Abdulrahman et al, 2012; Algahtani et al, 2020; Monteiro, 2019). Tamim (2018) says that more research is required in the field of BL in the specific context of application and perceptions of BL in GCC countries.

Limited professional development opportunities for instructors in the middle east, late introduction of the BL approach in the middle east, and a need to study instructors perceptions, provides a good opportunity to study instructors perceptions in the context of this study (Bellibas & Gumus, 2016; Sajid et al., 2016; Çardak & Selvi, 2016; Porter et al., 2016; Mozelius & Rydell, 2017).

#### **1.4 Traditional Methods of Teaching**

In the past, computer-based technology was not used in the classrooms for teaching as it was not available, and even when it started to be used for other purposes; it was not used for teaching (Molnar, 1997). For the purpose of this study, when I refer to 'traditional methods of teaching' it means face-to-face teaching, in a teacher-centered environment without any computer based technologies. Teaching was originally done only face-to-face in a classroom, with the instructor taking the lead. Of course, this can be applied today also where the instructor chooses to use the traditional methods of teaching only. Kaufman (2015) referred to this method as a teacher-centered environment. He further mentions that in a traditional teaching environment, human-to-human interaction is the main mode of communication where knowledge from the instructor is transferred to the students.

#### **1.5 Blended Learning Definition**

The word blended is defined as "to mix smoothly and inseparably together" (Dictionary.com, 2017). This fits well with the way I use BL in this thesis. BL has many definitions in the literature and has been defined and researched in different ways. The different definitions of BL are discussed in detail in the literature review chapter. After going through the literature as discussed below, for the purpose of this study, BL refers to a mix of teaching methods, consisting of technology and traditional face-to-face methods.

The three main definitions of BL used in literature (Graham, 2006; Güzer & Caner, 2014; Garrison & Kanuka, 2004) are merging instructional methods, merging different teaching methods, and online and face-to-face instruction. An obvious problem with using the definition, 'merging instructional methods' and 'merging different teaching methods,' is that these definitions of BL are too vague and do not give us a clear definition. For the purpose of this study BL is best defined as the merging of traditional teaching with technology-based teaching. In this study, BL refers to the use of computers, tablets, mobile phones, videos, special teaching software and so on, along with traditional classroom methods such as using the whiteboard with markers and reading from a book.

BL can also be defined and determined by whether a student is enrolled in an online course and if they are introduced to face-to-face teaching along with the online component. There are no fixed rules or formulae for what constitutes a perfect blend; that is why a BL approach is complex and differs from one instance to another (Garrison & Kanuka, 2004). Therefore, each institution needs to study their classroom and their needs; there might be some institutions that lack adequately skilled face-to-face instructors and others that might lack the required technological tools. Additional factors consist of need, quality of technological support, instructors' response, and the students themselves. There are models built to study such needs and the aspects of different circumstances.

According to Dziuban et al. (2018), when institutions are working on the implementation of BL, they should align the goals of applying BL with the goals of the institution. There are mixed opinions about the value of using technology in the classroom. The effects of BL can either be positive or negative. Research shows that the BL approach can give flexibility, improve teamwork, enhance communication,

motivate students and improve student understanding (Vaughan, 2007). Bower et al. (2015) mention that the benefits of using technology in the classroom are: bringing experience to the classroom, laying the foundation for solving complex problems, receiving better feedback, the opportunity for instructor career growth and better collaboration between students, parents, and instructors.

Conversely, some of the disadvantages of using technology in the classroom are mentioned by Barbour and Reeves (2009). They claim that students who are not well equipped to use technology could be at a disadvantage as compared to other colleagues in the classroom who are more competent in using technology.

Additionally, they mention that the student being taught with the use of technology must be confident in using technology. Barbour and Reeves (2009) also mention that if the student prefers to learn in groups or through discussion with colleagues and the instructor, learning by themselves with the aid of technology might actually serve to confuse the student. Finally, the student must be academically capable, where they know their basics and the instructor can build on their knowledge further with the aid of technology (Barbour & Reeves, 2009).

### **1.6 Problem Statement**

BL is applied at the MS but on an individual level, the institution supports the use of BL, but there is no systematic way of streamlining the process. Research shows that not organizing implementation of BL reduces motivation among instructors. The instructors who have implemented BL is because of their personal experiences, interest, and motivation. This study aims to study instructors perceptions of BL, and the effect of instructors perceptions on implementation of BL.

The growth in information technology is changing the world. In the field of education, there is increased use of information and communication technology. The

emergence of technology is changing the ways in which instructions are disseminated to the learners. The emergence of blended learning (BL) is one of the ways in which technology is influencing education. In the GCC countries, many post-secondary institutions are implementing BL within their education. This is despite the observation by Weber (2010) reporting the Gulf region being third from the bottom in the percentage of the population that uses the internet.

Like most countries across the world, GCC aims at having an effective education system that fosters innovation and enhances economic opportunities. According to Alkaabia et al. (2016), first-rate education focuses on innovation, research, science, and technology. Although the primary form of delivering higher education in GCC countries used to be face to face, the Ministries are pushing for an increased use of technology in education (Abdulrahman, 2008). Thus, the implementation of BL is likely to increase in the GCC countries in the coming future. Consequently, there is a need to constantly research and improve on BL. Research shows that BL research has mainly focused on students perceptions. However, there is also a need to study instructors perceptions (Wong et al., 2018; Anthony et al., 2019)

Kumar and Rani (2016), only 40% of teachers believe that technology would improve learning outcomes in the classroom. This figure is low considering many people assume that technology will play a major role in education in the future. Studying the instructor's perspective will benefit the instructors, the institution and the students in the long run on how to incorporate technology in pedagogy.

In the specific context at MS, this study will give a better understanding of the effects of BL and could therefore lead to improvements. Furthermore, findings from this thesis could be useful to other institutions in the GCC that are based on Western education curricula and are in the initial stages of implementing BL.

Despite its growing popularity, there is a dearth of research on BL specific to Middle Eastern countries (Atmacasoy & Aksu, 2018; Kemp, 2013; Rush, 2008; & Tamim, 2018). For instance, MS had not carried out an analysis of the impact of a BL approach on instructors. It is also important to note here as Plough (2017) states that BL is not about getting the right mix, or making a few videos, or posting material online. Plough (2017) concludes that BL is about the instructors being fully aware and trained for applying the BL approach and what they want to achieve from delivering material through BL. As a result, I saw the need for conducting research from the instructors' perspective that would assist in analysing BL for the institution. Documenting the lessons learned from implementing BL by the instructors at the institution would assist in identifying areas for improvement not only in MS, but in the whole Middle East region.

Despite being in existence for almost two decades, MS has not carried out any research on implementing the BL approach and specifically instructors perceptions of BL. Research on instructors perceptions could give a better understanding of instructors needs.

Moreover, the Middle East region needs to carry out further research on instructor needs and instructors development (Tamim, 2018; Abdulrahman et al, 2012; Algahtani et al, 2020). For instance, Alkaabia et al. (2016) estimate that as high as 40% of males drop out in their first year at college in the United Arab Emirates. Many researchers link the high rates of dropout to the social environment. BL could offer a more flexible option to help reduce the dropout rates. Additionally, an increased understanding of instructors perceptions of BL could lead to the development of the most appropriate BL strategies to further train instructors and improve the teaching environment (Algahtani et al, 2020).



### **1.7 Aim of the Study**

The aim of this qualitative study is to look at how instructors' perceptions of BL are formed, and how it affects implementation of BL in the classroom at MS in the Middle East. The study also aims to see if students' perspectives play a role in developing instructors' perceptions of BL at MS. The target population included entry level years' instructors and entry level first year students at MS. Eight entry level years' instructors and five students participated in the study. All eight instructors participated in a semi-structured face-to-face interview, and four of the instructor's classes were observed. The five students participated in a FGD. An inductive thematic analysis was used to analyse the data. The questions that this study attempts to address are listed below, and were developed based on the literature review:

1. What are the factors that influence instructors' perception and motivation around BL approach?
2. How do instructor's perceptions of BL influence the implementation of BL approach in the classroom?
3. How do students' perspectives influence instructors' perception of BL?

### **1.8 Justification**

Robertson (2003) found that there is a gap between the excitement of implementing and using technology, and how people actually experience technology. Additionally, Price and Oliver (2007) indicate that implementing technology in education is complicated, as there is no concrete answer to how the use of technology affects the classroom and how it should be adopted in a given educational environment. Pelgrum (2001) found out that implementing technology-based projects in an institution involves the management, the instructors, the students, and the information technology department of the institute. All these departments need to

agree or closely work with each other to achieve one goal, that is, enhanced learning for the student.

My study is important as it looks into the impact and effectiveness of technology in the classroom from an instructor's perspective. Anthony et al. (2019) carried out a study in 3 Malaysian Universities and found out that not much work has been done to study the impact of technology on instructors. The study also captures how instructors experience and practice technology in the classroom. Tiell (2017) carried out a study in United States of America on a group of seven schools serving under the same academy. He reached out to five teachers from the different campuses and interviewed them to see their perceptions on BL. Tiell (2017) study found out that there is a need to carry out more studies on instructors perceptions of BL as there is a research gap in this area. They found out that instructors perceptions of the use of technology and vision to succeed were the most crucial factors affecting their use of computers in the classroom. Therefore, it is important to study instructors perceptions, and the findings will be beneficial for the institute to further improve on their teaching standards, and also for other instructors within the GCC countries and globally.

As mentioned above, more research needs to be carried out on the outcomes of using technology in a classroom. Tondeur et al. (2016) mention that new technology is emerging on a daily basis and by the time data is collected and research is published, the information can become obsolete. Therefore, new research needs to be carried out to keep the readers and the decision makers well informed of the current affairs. In my case, this research will be beneficial for many communities. The study looks at the use of technology in a college preparation year in the Middle East, teaching an American curriculum to Middle Eastern students. Any findings of the study might be applicable to Middle Eastern instructors and students attending college

preparation years. My institution supports BL to enhance learning. However, no research has been done to gauge instructors response to the use of BL in their classroom. The study will aid in further improving future initiatives.

The target populations of the study are instructors who teach entry-level students. The main method of data collection is instructors interviews, class observations, and student FGD. A thematic analysis will be carried out on the combined data. Each instructors' narratives are presented before data analysis, to give the reader background information of instructors. The analysis will be carried out in light of the technology acceptance model (TAM), showing the relationship between the instructors, technology and the impact of external variables on instructors perceptions. TAM is commonly used to study internal beliefs and attitudes, and how external factors effect beliefs and attitudes towards technology (Fathema et al., 2015). Details will be further discussed in the next chapter.

### **1.9 Definition of Technologies Used by Instructors at the Medical School**

Below I give definitions of the technological tools that are used at MS. These technologies are mentioned in chapters 4 and 5, and the definitions will assist the reader to get a better understanding of the tools.

#### ***CANVAS***

CANVAS is a cloud based LMS, provided by the institution for the instructors to use. CANVAS can be used for administration, documentation, tracking, reporting and delivery of educational material. Instructors can create syllabus, assignments, and gradebooks made available for the students online. CANVAS can be used to increase student engagement by assigning group projects, messaging, email and discussions.

***PANOPTO***

PANOPTO is a video platform that supports a BL approach in the classroom by providing full support for recording and presenting video content. It is a video content management software.

***SIMBIO***

Is a discovery based learning virtual lab software for biology, comprised of different modules. Each module is divided into different topics, that include virtual labs that allows students to carry out experiments online, allowing them to produce and analyze their own data.

***Plickers***

Plickers is a simple tool, that allows instructors to collect live data in class, without the need for students to use devices. It allows the instructors to find out if the students are getting the concepts right and mastering the topics being taught.

***Case It***

Case It provides support in teaching molecular biology. It supports case-based teaching for high school and university students. Case It produces computer-based simulations and allows students and instructors to input information. Students visit the website and read the cases first. Then they can run simulations based on the case scenario, as assigned by the instructor. The students get to collect data, analyze data, and see images.

***Respondus***

Respondus is a lock down browser used by faculty members to give out exams to students. Respondus is a custom browser, that integrates with many learning systems such as CANVAS, one of the LMS provided at the institution. Creating exams and uploading them is very easy. It is a tool specifically designed to be used by

instructors. Therefore, instructors find it very easy to use. When Respondus is used during an exam, the exam takers cannot browse on other websites, they cannot copy or print the questions and they cannot take screenshots.

### *Quizlets*

Quizlets are flashcards, short games or short quizzes. Usually this is a short and quick way of teaching and training students to get a grasp of the concept in a fun way. Not too much detail is included, and students have to focus on a math or science problem at a time. Information is usually simplified and made easy to understand.

### **Concluding Remarks**

The context for this study is entry level years at a medical school in the Middle East. Findings from the study can be applied to instructors using technology in pre-college programs and the application of blended learning. Not a lot of research has been done on instructors perceptions on the use of technology in the Middle Eastern classroom. Therefore, the findings of this research can be used as recommendations for training instructors on how to apply technology in their respective classrooms.

The next chapter contains the review of related literature. The third chapter contains the methodology and methods. The research design is described, and the rationale for the design is provided. The data collection and data analysis procedures are detailed, as well as the ethical considerations and the evidence of trustworthiness. The fourth chapter contains the results of the study. The results are presented in the form of themes. Excerpts from the data are provided to support the results. The fifth chapter contains the discussion of the results, in light of existing literature. The fifth chapter also contains response to research questions, the recommendations, implications, and conclusions of this study.

## Chapter 2 - Literature Review

A thorough literature review was carried out to study similar work done in the field of Blended Learning (BL), and to get a better understanding of the area and gaps in knowledge. Originally, research questions were developed based on the initial literature review but were further refined based on a deeper understanding of the literature and gaps in the research. The literature review of the three main research questions is outlined below. The main focus is instructors perceptions of BL, however, looking into the way BL was implemented in the classroom, gives good insight and background information about the instructors. This study also looks at the effect of students perspectives on instructors perceptions of technology usage, in a BL environment. Therefore, instructor perception, instructor motivation, instructor and institutions' implementation of BL, student engagement, and effect of student behaviour on instructors perceptions of BL are discussed in the literature review below.

The BL approach was recently applied at MS and was a good opportunity to study how instructors perceptions of BL are formed and how perceptions effect implementation of BL. Interviewing the instructors on how they actually implemented BL into their classroom assisted me in getting a better understanding of the background and the reasons behind the implementation of BL. It also gave good insight about the instructors experiences and motivation to use or not to use the BL approach in their individual classrooms. This section starts with a discussion of various definitions of BL in the literature and its application for the purpose of this study. In this section I draw themes from literature surrounding the research questions. I also identify gaps in knowledge and highlight how my work contributes towards filling these gaps. Then BL implementation is discussed. The discussion is

not purely based around instructor implementation of BL in the classroom but rather the role of institutional support in building instructor perceptions about implementing BL is discussed. Section 2.4 discusses various aspects of instructor perceptions. The section has been further divided into smaller sections to make it easy to follow. Section 2.4 discusses the importance of instructors perceptions, some preconceived perceptions of BL, instructors willingness and motivating factors to use BL, and effect of student behaviour on instructors perceptions in a BL environment. Then activity theory, TPACK, and TAM in light of literature are discussed. And the application of TAM for the purpose of this study is discussed. This chapter is concluded with a brief discussion on gaps in BL.

## **2.1 Reviewing the literature**

Initial searches were based around general BL approaches and studies submitted by authors. From the initial searches, an understanding of BL definition and application were developed, leading to further reading and development of ideas, which led to further literature review and searches.

As the study is concentrated on BL approaches, this study looks into the various factors that contribute to instructors' perception of BL, and implementation of BL. Therefore, the literature review will present research that was conducted on BL implementation, instructors perceptions of BL, and impact of student behaviour on instructors perceptions. These three main topics are important for my study as I try to find out instructors perceptions of BL.

### ***2.1.1 Definition of Blended Learning***

BL is defined as a mixture of any two teaching methods (Oliver & Trigwell, 2005). Viewed through the lens of this definition BL can be a mix of any kind of learning techniques, technologies, and methods. For example, watching a

documentary along with a lecture can be defined as BL (Baldwin-Evans, 2006). The term blended learning was introduced in 1990s (Baldwin-Evan, 2006). The definition of BL has been problematic with BL meaning different things to different institutions, and as a result there is disagreement on the definition of BL and on how to measure it's benefits (Graham et al., 2012; Oliver & Trigwell, 2005; Sharpe et al., 2006).

According to Güzer and Caner (2014), the concept of BL is relatively new as most scholarly articles emerged from the year 2000. This does not imply that BL did not exist in education. As mentioned above the term BL was introduced in the field of education in the 1990s. According to Caner (2012) BL has become more well-known in education due to the technological advancements. Development of teaching tools and technology has promoted the use of the BL approach in education.

In view of the discussion above it is important to clarify the specific BL definition being applied in this study. Alammery et al. (2014) reviewed the definitions of BL. They observed that the term has considerable variations across institutional contexts. The most consistent definition implies that the concept involves an integrated combination of traditional and web-based learning. The major problem with the definition emanates from the fact that instructors would normally add a handful of web-based content to their traditional teaching models and still call it blended (Alammery et al., 2014). Hrastinski (2019) discusses the two most cited definitions of blended learning. First definition of BL is by Graham (2006) cited 2149 times and the second definition of BL is by Garrison and Kanuka (2004) cited 3116 times (Hrastinski, 2019). First definition "blended learning systems combine face-to-face instruction with computer-mediated instruction" (Graham, 2006, p.5). Second definition "the thoughtful integration of classroom face-to-face learning experiences with online learning experiences (Garrison & Kanuka, 2004, p.96). BL can be applied



in many different ways dependent on context. For example, in an online or distance learning environment a blend of technologies can mean blended learning is being applied (Phipps & Merisotis, 1999). Therefore, it is important for each researcher, to give the full context and the meaning that they imply in their research.

Depending on the BL definition that one uses, some forms of BL are applied in today's contemporary higher education setting. Almost every student has email these days, and academic discussions can take place either one on one or via emails or through other internet platforms. This compares to the times when technology was unavailable to students. Subsequently, technology was introduced in higher education in the form of computer labs but was not introduced in the classroom. Currently, BL is applied in many higher learning institutions in various forms. It is probable that in the next few years, BL will become the normal way of teaching as technology is increasingly being incorporated into learning. Graham (2006) also argues that we might eventually stop using the work "blended learning" and might just call it simply learning in the future.

Driscoll (2002) argues that BL could be viewed differently by different people. In the specific context of MS this study reveals instructors perceptions of BL, the impact of instructors perceptions on the use of BL approach in their classrooms, and the impact of students perspectives on instructors perceptions of the BL approach. This study does not contribute to the definition of blended learning, however, it does contribute to how BL is viewed by instructors, and what factors could have an impact on the instructors perceptions.

This thesis adopts the second most cited definition by Garrison and Kanuka (2004) as discussed above (Hrastinski, 2019). Definition of blended learning as a mix of teaching methods, consisting of technology and traditional face-to-face methods

(Garrison & Kanuka, 2004; Graham, 2006). The definition of BL by Garrison and Kanuka (2004) incorporates a planned integration of online learning. This definition implies that the instructors plan and add BL in the classroom, to enhance the teaching and learning process. Garrison and Kanuk (2004) also say that the application of BL is a complex process and needs to be designed for each class dependent on the need. This definition applies to this study. The first most cited definition of BL by Graham (2006) is more inclined towards using face-to-face learning with computer-mediated instruction. This definition implies that technology is used to facilitate teaching in the classroom. Graham's definition does not point to a tailor-made approach for each classroom. This definition does not mention a thoughtful integration of technology like Garrison and Kanuka's definition. The main approach of the two definitions is the same, use of technology with face-to-face instruction. We can conclude from the two most cited definitions of BL that when the term BL is used, most of the times it implies that some sort of technological intervention is being used with face-to-face instruction. In light of the above discussion, in this study BL is defined as the planned use of technological intervention along with face-to-face teaching.

The definition serves as a guideline and should not be viewed as a limiting declaration. Picciano (2009) also reports that BL can be used to refer to entire academic programs and not just courses. It is against a consistent definition that the effects of BL can be objectively evaluated.

## **2.2 Advantages of Blended Learning Approaches**

A question to be asked is why shift to BL approach? This is particularly important in relation to expert teachers who have been teaching without technology for a long time (Graham, 2006). However, various researchers have demonstrated that BL is relevant in the contemporary education system. For instance, both Tamim

(2018) research on instructors in the GCC countries and Wong et al. (2018) research shows that moving to a BL teaching approach, improves communication, student learning experience, accessibility to learning material, and flexibility. Research also shows that BL approaches improves collaboration, a better understanding of scientific concepts, and better reasoning (Lämsä et al., 2018)

Benefits of BL reported by Indiana University and Pexip in the United states are increased student attendance and greater student satisfaction (PR Newswire Association, 2019). Fisher et al. (2018) carried out a study in the United States of America where over two years they collected and analysed 348 student responses. They reported the benefits of BL as follows: students have more access to the material, better student engagement, performance, and satisfaction (Fisher et al., 2018).

Moreover, Bonk and Graham (2004) make a case for BL claiming that it is the future of learning. For instance, they mention that BL will increasingly use mobile-held devices such as cell phones. Consequently, it would lead to a higher accessibility for learning opportunities. Additionally, they mention that BL is increasingly addressing individual needs in the complex decision-making process. As learners take more responsibility for their education, learners are able to select programs that are beneficial to them. Although BL is criticized for its lack of social interactions, emerging technologies in BL will foster increased connectedness, collaboration, and global awareness (Lämsä et al., 2018).

I agree with Bonk and Graham about the benefits of BL as reported by instructors at my institution: students have more access to the material; it is available online all the time; and they can view it in their own time and at their own convenience. Lectures, notes, messages from the teacher and from peers can be

reviewed at any time, in the classroom or outside the classroom setting. In a classroom a limited number of students can access the teacher while being taught face-to-face, however, if the material is available online, any given number of students with access to online technology can view the material, hence serving a diverse student population. Additionally, BL makes it easier for teachers to follow-up on students, as they can view how many times a student has logged into the class, their work, whether they have submitted assignments.

The effects of BL have been positive in certain circumstances. In contrast, a study by Tosun (2015) to test the learning of vocabulary in Turkey found that there was no significant difference in outcomes between those students who learn by conventional ways and those who use BL. However, the study concluded that learners preferred BL because it was flexible and offered convenient options.

### **2.3 Blended Learning Implementation**

Details and background on the implementation of BL are important in understanding the context of BL. Ying and Yang (2017) mention that BL is the new teaching method being applied in higher education. Furthermore, Ross and Gage (2006) demonstrated how BL is a widely used method of teaching in higher education on the global scale. By 2004, 45% of the undergraduate higher learning institutions in America offered BL. It has been predicted that BL will be the new form of 'traditional learning' or the 'new normal' in higher education delivery (Porter et al., 2014). The importance of understanding the effect of instructors perceptions on the implementation of BL would enable an enhanced understanding of the practice (Mozelius & Rydell, 2017). There is a need to further study instructors perceptions of BL implementation (Mozelius & Rydell, 2017). This study attempts to contribute to

research by looking into individual instructor's responses and the reasons behind implementing or not implementing BL approaches.

BL helps instructors engage students in active learning that promotes skills such as communication, and information literacy. There is a need for further contributions around matters related to the adoption of BL. However, there is a difficulty in evaluating BL as it is often introduced by one of the instructors in an institution, and not officially by the institution as a whole. Additionally, the perceptions and reasons behind implementation of BL by the instructors have not been reported. Keeping track and records for research purposes could be challenging (Graham et al., 2012). As a result, the BL approach depends on the individual instructor and can alter from instructor to instructor, depending on personal preferences, the class size, and the technical support available. Boelens et al. (2018) carried out a study in Belgium and interviewed 20 instructors in an adult education centre. The interviews were focused on instructors' beliefs about designing BL to address student diversity. The findings revealed 3 different types of instructors and their ways of addressing BL course design to tackle student diversity. The first type is 'disregard', that is they do not make any changes to their course cater all the students, and just keep teaching using their methods. The second type is 'adaption', they provide additional support to the students and believe that providing more support will be sufficient. The third type is 'transformation', this type believed that BL should be designed in a completely different way in order to meet the students demands. Boelens et al. (2018) state that almost 50% of the instructors were the third type who believed that BL approaches should be transformed to meet student diversity. Study by Mozelius and Rydell (2017) on university instructors perceptions on problems to successful implementation of BL reported that instructors did not feel well informed

when it came to instructional design in a BL environment. Mozellus and Rydell (2017) point out the role of the institution and its impact on the instructors. Role of institutional support is discussed in more details below.

Each instructor has their own story and reasons behind implementing the BL approach. There is a gap in research where the stories behind the individual instructors' perception of BL and the reasons behind implementing the BL approach are left untold (Makhdoom et al., 2013; Bowyer & Chambers, 2017). One of the suggestions from Boelens et al. (2018) findings was that more professional support focusing on instructor beliefs should be provided by institutions to obtain the full benefits of the BL approach. Instructors need to be supported by the institution to do their job properly (Allen et al., 2012). Therefore, below I discuss the role of the institution in implementing the BL approach.

### **2.3.1 Importance of Institutional Support in Implementing Blended Learning**

The discussion below shows that, institutional support plays a crucial role in the implementation of BL in a classroom. Institutional support can be a motivating factor, motivating instructors to play an active role (Torrissi-Steele & Drew, 2013; Day & Sammons, 2016). Therefore, it is important to look into institutional support, and integration of the BL approach. Institutional support contributes to building a positive perception of the BL approach among instructors (Day & Sammons, 2016).

It is important not to copy a BL model in its entirety when applying it to the new institution. Taylor and Newton (2012) suggest that each institution should develop their own framework of BL. This implies that each classroom should not be identical to another in terms of applying the BL approach. Nevertheless, the institution should have a common goal and the expected results from applying the BL approach should be clearly defined within an institution.

Implementation of BL takes various forms. Casanovas (2010) states that implementation of BL by an individual in an institution does not mean that the whole institution has adopted BL. There is a clear difference that needs to be identified. This is true for institutions where individual instructors introduce BL to a class, but the institution does not have a plan/policy on BL. The repercussions of the unsystematic implementation of BL are discussed by Halverson et al. (2012). They posit that it is hard to keep track and record of the achievements and implementations that have been done through BL where it is undertaken by individual instructors. The unsystematic implementation of BL results in a dearth of concrete records of the implementation and development of BL.

Despite the unsystematic implementation of BL, Porter et al. (2014, p.186) identify three stages of BL adoption in an institution:

“Stage 1: Awareness/exploration

Stage 2: Adoption/early implementation

Stage 3: Mature implementation/growth”

This framework for adoption of BL in the institution was based on an earlier study by Graham et al. (2012). It was developed from interview data from six institutions which were at various stages in implementing BL. Porter et al. (2014) explains the three stages of BL adoption, and offers a step-by-step guide to the successful adoption of BL. The first stage, awareness and exploration, is where the institution introduces the idea to the involved instructors and other administrative members, where they get to explore and study the entire process and discuss among themselves the advantages and disadvantages. The instructors get time to plan the procedures and methods involved in introducing BL in their classrooms.

In the second stage, adoption/early implementation, the institution has come through the exploratory stage and actually adopts the new BL model and implements it across the institution and is able to provide support to the end users. In the third stage, mature implementation/growth, the process has matured, and the end users have adapted well to the new approach, which is part of their routine, and BL is an important part of the institution.

The analysis of case studies is an alternative way of developing a framework for implementing BL. Bower et al. (2015) analysed seven BL cases to develop the Blended Synchronous Learning Design Framework that was based on the synthesis of the students, researchers, and teachers across the seven cases. Like Porter et al.'s (2014) framework, the Bower et al.'s (2015) framework had three stages, which included presage, process, and product. Presage is the design stage where the learning outcomes are defined. The process is the implementation stages that apply strategies for engaging face to face (F2F) and remote students. The product is the outcome of BL and should lead to greater student satisfaction.

A pragmatic method of implementing BL is presented by Alammary et al. (2014). They identified three distinctive design approaches in BL: low impact blend, middle impact blend, and high impact blend. The low impact blend involves extra activities being added to traditional courses. In contrast, the middle-impact blend occurs when parts of the old course are replaced by online models. In contrast, the high-impact blend model builds a course from scratch.

There are practical applications of these proposed BL frameworks to my institution. Although MS applies BL, it might have skipped the first stage of both Porter et al.'s (2014) and Bower et al.'s (2015) models, as everyone was introduced to BL at the same time. The Porter's model identifies the first step as an important stage



because it is the building block and lays a strong foundation, where everyone communicates and discusses the disadvantages and advantages of implementing BL. In contrast, MS applied BL unsystematically where the instructors used trial and error to introduce BL, and it was later adapted by other instructors. However, not all the instructors had implemented BL as of September 2018. This is further discussed in the discussion chapter 5.

One of the major components limiting the adoption of BL in higher education is teacher resistance to technology. A study by Allen et al. (2012) interviewed over 4,500 teachers in the United States of America. Their results show that 65% of the teachers were afraid of incorporating technology into their teaching. Jeffery et al. (2014) highlights the major reasons for pessimism by the teachers in New Zealand to include lack of adequate support, fear of failure, and inadequate time for developing online materials. Observations showed that instructors are also afraid of incorporating BL. However, when one instructor implements it successfully, the other instructors are likely to follow suit.

### ***2.3.2 Barriers to Implementation of Blended Learning***

Notwithstanding the potential benefits of implementing BL, some challenges are extant in its implementation. Boelens et al. (2017) carried out a systematic review on 20 studies on the design of blended learning. They concluded that issues facing design of BL can be categorized into 4 major segments: integrate flexibility, to encourage interaction, to be involved in the students' learning process, and to promote an affective learning environment. Learners often choose the type of blend that is convenient for them. According to Bonk and Graham (2006), learners rarely consider how the blending would impact their learning experience.

Bonk and Graham (2006) also identify the choice of models for supporting training as limiting factors in BL. A major obstacle in the application of BL is a lack of technological resources due to inadequate funds provided by the administration. Reid (2014) identified the barriers to technology to be lack of facility, technology not being reliable, and technology not easy to use. None of these challenges are faced at MS, as the institution provides state of the art facilities, and funds required to implement a BL approach.

Fear of change is a common factor among people and introducing technology in classrooms leads to many fears. Ocak (2011) states that, fear is a risk factor in BL as many instructors are afraid of losing control of their courses. It is further mentioned that fear can only be overcome by enhancing the hands-on experience with the various tools of BL. One of the instructors at MS reported to not use BL as she viewed it to be not useful and a waste of time. The challenges discussed here are further discussed in the discussion chapter 5.

#### **2.4 Instructors Perceptions**

The instructor is an important component for the successful implementation of any BL project (The Oxford Group, 2013). Instructors perceptions of BL are important in ensuring successful implementation, as discussed further below. The instructors perceptions of technology in general and instructor variables are key considerations for discussion. Comas-Quinn (2011) interviewed and surveyed 20, University instructors in the UK, who had taken training to teach courses using the BL approach. Previously these instructors did not use any technological tools for teaching. The teaching tools, instructors were mainly trained to use were forums and blogs. According to Comas-Quinn (2011), the degree to which instructors transition from a face to face classroom role to the wider role demanded by increased use of

technology in pedagogy determines the success in BL. Comas-Quinn (2011) goes on to say that applying BL is not all about the ICT skills of instructors, but also about the instructor's expectations from their new role. Moreover, instructors' variables should also be considered in all BL projects.

Anthony et al. (2019) mention that the instructor plays a crucial role in the effective use of computers in today's educational system. Therefore, it is important for us to understand instructors' thinking and the factors that influence into the way they think. A factor that could potentially effect instructors perceptions is student's perspectives. This study shows that instructors perceptions of BL can be affected by student's perspectives in a BL environment, and section 2.4.6 sheds some light on this topic based on literature. The students look up to the instructor for learning, and a student's first exposure to the teaching tool might be from the instructor. If the instructor is confident in using technology, she will pass on the same confidence to the students (Kraft & Blazer, 2018). Kraft and Blazer (2018) examined literature related to teacher coaching and evaluated several coaching programs in USA. Based on their work Kraft and Blazar say that the instructors' willingness to adapt is important for creating a culture of learning and openness.

The discussion shows that instructors do not always express their views. Behind the scenes, there is a process going on that we do not see. Introducing technology in the classroom means a change to their standard way of teaching. The change could be perceived to be good or bad, varying from person to person. Change has a psychological effect on people. Individual instructor's needs can vary from instructor to instructor (Kraft & Blazar, 2018). Kraft and Blazar mention important points above. As discussed further in chapter 5, this study revealed individual instructor's needs, and the process that takes place behind the scenes.

### *2.4.1 Instructors Preconceived Perceptions of Blended Learning*

Instructors can have preconceived negative perceptions of BL based on, their past poor experiences with BL, high expectations from students, and lack of technical knowledge (Mozelius & Rydell, 2017; Smyth et al., 2012; Poon, 2013; Brent et al, 2015). Mozelius and Rydell (2017) interviewed six university instructors in Sweden that were involved in designing their courses. Their goal was to find out the instructors perceptions of problems and barriers to implementation of BL. One of the instructors' in their study reported that lack of technical knowledge can have negative consequences in the course (Mozelius & Rydell, 2017). Instructors also reported that it was not just the lack of knowledge, but the lack of information that caused confusion and frustration, therefore, some of the instructors choose not to implement BL at all. I think that not having the skills to use certain tools can be compensated by training and support. However, not being informed, and made part of the implementation process caused the frustration among instructors. Being informed and having a clear picture of what to expect, can have a positive effect on the use of the BL approach (Mozelius & Rydell, 2017).

Studies do show that instructors who have had a bad experience with technology can also ban technology (The Derek Bok Center for Teaching and Learning (Bok Center), 2020). When instructors see students starring at their devices in class, they get discouraged to teach (Bok Center, 2020). Study of instructors perceptions at MS showed that, past poor experience with technology can have long term effects on instructors perceptions of the BL approach and can lead to banning technology. Experiences of instructors at MS are further discussed in chapter 5.

Bok Center (2020) suggests that banning technology is not the solution. But rather, the instructors should be trained, and the instructors need to change their

approach to technology. Some suggestions are to stand closer to the students rather than the podium, add variety when using technology, add interactive quizzes, online polling, and other similar activities, that keeps the students engaged in learning during class time. They also suggest training and support by institution, which is discussed above in 2.3.1 (Bok Center, 2020).

In a BL environment instructor can have high expectations from students. They expect the students to take ownership and comply with the work assigned (Smyth et al., 2012). When instructors assign work to be completed online, or before attending a class, they expect the students to meet their expectations. When instructors expectations and needs are not met, they could perceive BL to be not useful (Brent et al., 2015).

#### ***2.4.2 Importance of Instructors' Perceptions***

Instructors perceptions of BL needs to be studied further (Çardak & Selvi, 2016; Porter et al., 2016; Mozelius & Rydell, 2017). Plomp (1996) reports communication technology was introduced to the field of teaching in the 1980's. BL is a new concept in the middle east as compared to other developed countries (Sajid et al., 2016). Consequently, some instructors find adopting the use of technology in the classroom to be difficult, as they were not trained in how to use technology, especially in the Middle East (Bellibas & Gumus, 2016). Bellibas and Gumus (2016) interviewed 13 Turkish mathematics and science teachers about their views on professional development opportunities for Turkish teachers in Turkey. Bellibas and Gumus also compared professional training opportunities for Turkish teachers with trends in international mathematics and science study carried out in 2011 on teachers from Singapore, South Korea, Hong Kong, Taiwan, and Japan. From their studies they found out that the professional development opportunities were very limited for

Turkish teachers as compared to other countries. BL was introduced late in the middle east, and there is a gap in literature on instructors perceptions of BL in the middle east, (Bellibas & Gumus, 2016; Sajid et al., 2016; Çardak & Selvi,2016). Findings on instructors perceptions will create a better sense of awareness for the instructors at a personal level. The findings on instructors perceptions will also assist in better implementation of BL in the classroom, and better equip institutions in integrating BL institutional wide. For instance, research by Kumar and Rani (2016) on instructors' perception of technology in India concluded that only 40% of the instructors thought that technology would enrich the classroom experience. On the other hand, a handful of instructors truly believe that the use of technology in the class improves the whole teaching and learning process (Kumar & Rani, 2016). This is an example of one institution. Studying instructors views within each institution could prove to be beneficial.

The instructors know the content of the subject that they teach and can also learn to use technology, the integration of the two is very important. Success in BL would depend on how the instructor would incorporate the content and technology. Many instructors might not be able to get their message through when using technology and might be much better when teaching without technology intervention. As discussed later in chapter 5, two of the instructors at MS prefer to teach without using technological intervention. This is an example of one of the findings of the study, other findings and instructors perceptions are discussed in detail in chapter 5.

### ***2.4.3 Instructor Variables***

Study of instructors at MS revealed that instructors perceptions of BL are affected by a variety of variables that include readiness and belief, interest in BL, personal benefits, teaching experience and experience with technology (Mozelius &

Rydell, 2017). Coryell and Chlup (2007) surveyed fifteen ESL instructors and four directors of ESL courses from 11 different states in the USA. Coryell and Chlup (2007) studied how instructors in e-learning influenced the success of delivery of English as a second language course. They note that student-instructor interaction is vital for the success of e-learning. Successful projects involved a continuous monitoring mechanism between the students and instructors across programs. Due to the importance of the student instructor relationship when applying the BL approach. This study looks into how student behaviour and response to BL can have an effect on instructors perceptions of BL.

The characteristics of the instructor will influence the student perception that will, in turn, affect the BL. Inan and Lowther (2010) researched instructor factors that affected the integration of technology in the classroom. They applied a research-based path model that involved 1,382 public school instructors in Tennessee. Their research concluded that only instructors' readiness, belief, and computer availability had statistically significant positive impacts on technology integration. The other variables such as age, years of teaching, technical support, and computer proficiency had some influence but were not determined as being statistically significant. Tweed (2013) surveyed 124 instructors from 2 different schools in the USA. Tweed (2013) concluded that an instructor's experience with technology and level of preparedness to use technology, had the most direct and significant effect on classroom technology integration. BL offers numerous benefits to instructors, but negative perceptions of BL can affect its application and implementation in the classroom (Tshabalala et al., 2014). This study attempts to look into factors that create negative perceptions of BL among instructors.

#### *2.4.4 Instructor Willingness*

Instructor willingness comes from the number of years of teaching, experience, and the level of comfort in their own way of teaching (Tondeur et al., 2008). Tondeur et al. (2008) carried out a study in the Netherlands on schoolteachers and reported that willingness to change comes from the attitude towards growth and development: a mindset to change, to move forward, makes the difference. Kirkwood and Price (2014) carried out a literature review on technology enhanced learning, they analysed 81 unique references. Kirkwood and Price (2014) report that an overwhelmingly large number of instructors employ technology to sustain existing patterns of teaching instead of innovating new patterns. Only a small fraction of instructors are willing to use technology to accelerate student-centered and project-based learning approaches. The use of BL does not equate to student-centered or innovative teaching, it is dependent on the instructor's efforts.

Instructor's emotions have an influence on the whole learning, instructor's willingness and teaching experience (Garner, 2010; Yin & Yang, 2017). Studying instructor's suppression or expression of emotions is important in the field of education. Suppressing emotions can have negative effects, one of them being less job satisfaction (Lechuga, 2012). Expression of emotions can have potential positive effects, one of them being the instructor having a positive relationship with students and peers at work (Oplatka & Stundi, 2011). Instructors emotional stability has a positive effect on the instructors at a personal level (Hagenauer & Volet, 2014). If the instructors are emotionally stable, they perform better in the classroom (Yin & Yang, 2017). If the instructors are not willing to implement BL and there is resistance to change this creates negative emotions (Bahia et al., 2013). Based on this discussion, instructors emotional conviction in a BL environment contributes positively to the



whole teaching and learning process. Maybe, educators should pay more attention to instructor's emotions when introducing BL.

Instructor willingness to incorporate technology in learning is increasingly not considered an option. Comas-Quinn (2011) reports that nowadays, more and more instructors are required to teach online as an increasing number of institutions are implementing a blended model of education. Some instructors might take up online teaching reluctantly. It is important that institutions develop effective training systems to adequately prepare the instructors for their new roles. Therefore, this study also incorporates the role of the institution when discussing implementation of BL by the instructors. Discussion above shows that the institutional support has a direct effect on the instructors perceptions of BL and plays a role in the implementation process of BL.

#### ***2.4.5 Motivators***

As Valcour (2017) explains that motivating people in doing their jobs is not an easy task. Employees are motivated when they “feel valued, trusted, challenged, and supported in their work – all things that leaders can influence” (Valcour, 2017, p.2). We might think that incentives play an important role in motivating people. However, Valcour (2017) explains that more than the incentives, an employee's day to day experience at work has a much bigger contribution towards motivation. Organizations have to make an effort to motivate employees. Therefore, anything that self-motivates people is of importance to organizations and will contribute to literature (Valcour, 2017). Instructor motivation needs to be studied further and any findings from this study will contribute to literature (Stupnisky et al., 2018). As has been established, instructors have a significant influence on the success of BL programs (Takala, et al.,

2016; Tondeur et al., 2008; The Oxford Group, 2013). Vegas and Umansky (2005) produced a report on Latin American instructors and showed that student outcomes are improved if instructors are given incentives to teach. Some of the common incentives for instructors includes promotion, funding, grants, financial gains, benefits, and more options available for learning.

Not all BL courses end with a success story. Driscoll (2002) prepared a report for IBM as a consultant and made some recommendations for instructors. Driscoll (2002) reported that BL was not successfully implemented and concluded that BL failed to reach its full potential. The cause of disappointment was due to instructors not willing to adopt BL or instructors not trained professionally to teach using a BL approach. Allen et al. (2012) carried out a survey on 51000 higher education teachers in the United States of America from all disciplines. Teacher information was retrieved through National higher education commission and teachers were reached via email for surveying. Allen et al. (2012) demonstrated that when teachers are not involved in the decision-making process, they do not have a sense of ownership when it comes to new initiatives. The decision makers are usually administrators, who do not see the implementations in action on the ground, leaving a communication gap. Allen et al. (2012) recommended that open communication is fundamental to the successful implementation of BL.

Gibson (2001) from department of administration, counselling, educational and school psychology at Wichita State University, USA, carried out a literature survey on technology and pedagogy. Gibson (2001) demonstrated that an external change of technology-aided assistance has an effect on an instructor's personal view of teaching, transfer of knowledge, learning, application, and development. In the

concluding comments of his paper, Gibson (2001) suggests the importance of a 'pedagogy of learning' where instructors should focus on learning instead of the teaching process. Whether they use technology or not, instructors should be motivated to implement the learning strategy. Chigano et al. (2014) argue that it is important to understand instructors motivation when introducing technology in the classroom. Using technology can motivate instructors when they perceive technology to, give professional satisfaction, facilitate teaching, make teaching interesting, and save time. When instructors needs are met they are motivated to teach, and when they see that their needs are not being met they can feel demotivated to use a certain method of teaching (Stupnisky et al., 2018).

#### **2.4.6 Effect of Student Behaviour on Instructors Perceptions in a BL**

##### **Environment**

Students do play a role in the success of the BL approach (Maltby & Mackie, 2009). Maltby and Mackie (2009) carried out a study on around 1400 University students in the UK. And they reported that VLEs can support or deter student engagement and performance as it is dependent on the end user. This study tries to implore this idea of dependency on the end user, that is the students. And how the student response to technology in a BL environment, can effect instructors perceptions of the BL approach.

There is a gap in research studying the effect of student behaviour on instructors perceptions of BL (Al-Busaidi & Al-Shihi, 2012; Brown, 2012; Palmer, 2015). Student technology literacy creates better classroom environment for implementing BL approach (Eryilmaz, 2015). According to Eryilmaz (2015) instructors are more willing to adopt BL when it is preferred by students. Akkoyunlu and Yilmaz-Soylu (2008) studied the perception of BL among 34 undergraduate

students in Turkey using Kolb categories of divergers and assimilators. Their research showed that these students preferred face to face learning compared to online or blended learning. This was in the past, but perceptions have changed with technological advancements.

More recent research studies show that students can be more responsive to BL. For instance, Xu and Jaggars (2013) carried out a study on 40,000 Washington State University students to see which online programs are more popular for the students to enrol in. They found out that humanities, education, computer science, and English were the most popular online programs to enrol in among students, while students did not enrol for science, maths, language, and engineering online courses. The trend was that students preferred not to be taught the hardcore science or lab-based courses online and preferred one-one attention from the instructors (Xu & Jaggars, 2013).

Zhao and Cziko (2001) discuss the two main perceptions instructors can have as initially described by Davis (1989,p.5), “perceived usefulness and perceived ease of use”. Perceived usefulness captures the value of a learning system, while perceived ease of use refers to the degree users expect using an e-learning system to be free of effort. According to Islam (2013), both appear to be important. Islam (2013) surveyed 249 University of Turk, Finland, students working through Moodle as the learning management system. Islam concluded that students are likely to embrace an e-learning system if they think that it would enhance their learning. Similarly, students are more likely to embrace e-learning technology and BL if they are easy to use.

Students perceptions of PU and PE of use can effect instructors perceptions also (Eryilmaz, 2015). When instructors see students are being distracted because of technology, they perceive technology to be not useful. Studies show that when material is posted online, students tend to be absent from classes (Poon, 2013). In

cases where students skip classes due to technological providence instructors perceive BL to be not useful. Other examples are, that instructors feel discouraged when students focus on their devices such as laptops and phones, rather than the instructor in class (Barks et al., 2011; Bok Center, 2020). Virtual learning environments (VLE) can also promote student disengagement, for example Bukoye and Shegunshi (2016) found out that in a VLE students realise that attendance is not being noted and absence is not punished. Student response to a BL environment can have an effect on instructor's perception of BL. This study revealed a similar issue related to attendance in a BL environment (Bukoye & Shegunshi, 2016).

### **2.5 Student engagement Definition**

Malthby and Mackie (2009) say that we should not look at student engagement on the surface only but go a bit deeper. They say that when looking for engagement we should look for the following things in students: social skills, collaboration, planning, management, creativity, and meaningful activity. They are trying to convey a message that the word student engagement is used generally speaking. While there are more details involved. As researchers when we measure student engagement, we should look at the details. And try to see if the student portrays the above-mentioned qualities, are they truly engaged in the learning and communication process. Then only can we confidently conclude that the students are engaged in their work (Malthby & Mackie, 2009).

Taylor and Newton (2013) say that student engagement means getting students more involved in the class, getting their attention, making the students have a sense of belonging and promoting good behavior. Student engagement could be at various levels: being engaged with the instructors, being engaged with colleagues, being engaged physically or emotionally (Taylor & Newton, 2013). Other definitions

of student engagement are when students put time and work to achieve results in their respective academic institutions (Kuh, 2009). Involvement of students in learning, among each other, and with instructors (Axelson & Flick, 2010). Other words used in literature when defining student engagement are that when students are motivated to learn, participate in activities, show passion for learning, portray a positive behavior towards learning, attention to learning, have a curiosity for learning, show excitement towards learning, and interaction (Fletcher, 2015; Barkley, 2010).

As this study focuses on instructors perceptions and how student interaction with BL affects instructors perceptions of the BL approach. Therefore, it is also important to define “student engagement” and the definition adopted in this study. Taking into considerations the above mentioned definitions, when student engagement is mentioned in this study, it refers to students actively taking part in class activities, students showing genuine interest in the work assigned, students displaying and enjoying learning, and students taking part in class discussions.

## **2.6 Theoretical Framework**

### **2.6.1 Activity Theory**

Activity Theory (AT) comes from Leontiev's (1981) Cultural-Historical Activity Theory. Vygotsky originally stated that the human consciousness can be shaped by the individual's social and cultural experiences (Vygotsky, 1978). This process of learning is called an activity, and it is further defined by applying the principles of AT.

AT represents the basic connection involving a subject driven by a requirement to change an object and using a tool in the process (Barab et al., 2004). It covers a range of social and cultural factors, giving a detailed analysis of complex human activity (Vygotsky, 1978). As Behrend (2014, p.118) concludes in her study,

AT provides a solid framework for analysing “change of behaviour within groups of individuals as they engage in academic activities”.

Based on work by Vygotsky and Leont'iev from their studies of cultural-historical psychology in the 1920's, activity theory (AT) has been used as a lens to understand human interaction with tools or other learning aids (Hashim & Jones, 2007). Since the 1990s, AT has been the main theory in exploring human-computer interactions. AT is based on the idea that doing something that is an activity has an effect on everything, on our thinking, goals, why we do what we do, and on how people grow and learn from doing (Hashim & Jones, 2007). Activity theory provides a philosophical framework for understanding human behaviour within a certain context, specially when a tool such as technology is added in the system. The activity and action need to be separated, the activity explains why the activity is taking place, that is the motive. And the action explains what must be done to achieve it, that is the goals.

AT proves a holistic theoretical framework for research when working with socio-technical scenarios. AT concentrates on the relationship that the activity has with the learning that is going on within an individual in the given environment. AT mainly focuses on the human activity, and takes into account the historical factors, the learning process, motivation, and the culture of the community. AT suggest that understanding takes place when an individual interacts with others. According to AT knowledge is gained by interactions between a learner and anyone who is more knowledgeable than them. Work done in light of AT suggests that student interaction is a crucial component of constructivist learning when teaching using technological tools (Adam, 2017). This view leads to another question that, are instructors using technology to deliver content, or to facilitate learning (Adam, 2017). The ways in

which instructors use technologies in the educational context can vary from instructor to instructor. Therefore, it is also important to look at instructors perceptions in a given context. It can be looked at from any point of view, but there is always a relationship between instructors, students and technology. For the purpose of this study, I want to study instructors perceptions, and how instructors perceptions can alter dependent on technology usage and student perspectives. Integrating technologies in the educational context is a complex process and can be studied using commonly applied models Technological Pedagogical and Content Knowledge (TPACK) and Technology Acceptance Model (TAM) (Adam, 2017). TPACK and TAM are discussed below in further details.

### ***2.6.2 Technological Pedagogical and Content Knowledge (TPACK)***

TPACK combines three main forms of knowledge Content Knowledge (CK), Pedagogy Knowledge (PK), and Technology Knowledge (Mishra & Koehler, 2006). The TPACK framework also looks at the knowledge at the intersection of these three forms of knowledge. Namely, Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical Content Knowledge (TPACK) (Mishra & Koehler, 2006).

TPACK looks into the relationship between technology and teaching, the practice of teacher education, teacher training, and teachers' professional development (Koehler, Mishra & Cain, 2013; Mishra & Koehler, 2006). Mishra and Koehler (2006) argue that in the 1980's when Shulman developed the Pedagogy Content Knowledge (PCK) theory, Shulman identified the importance of the relationship between pedagogy and content knowledge and that they are interdependent on each other. Shulman identified the relationship between pedagogy and content knowledge and faced similar issues as they face today in incorporating



technology's role in teaching (Mishra & Koehler, 2006). According to TPACK theory knowledge of technology (T), knowledge of content (C) and pedagogy (P) are all equally important for teachers. Content knowledge is defined as the actual knowledge of the specific subject a teacher is teaching. Pedagogical knowledge is defined as the knowledge of various teaching methods, student evaluation, and student learning process. And how things are applied in the classroom. Technology knowledge is defined as knowledge of any tools used for teaching, such as a whiteboard, video playing, digital platforms, internet and other digital technologies (Koehler et al., 2013).

TPACK model stresses that development of teaching content requires a thoughtful blend of all three key sources of knowledge: technology, pedagogy, and content. The basis of this argument is that there is no single technological solution that applies for every teacher (Mishra & Koehler, 2006).

Adding a new technological tool can have an effect on pedagogy and the content. The way of implementing the change in the content and pedagogy is dependent on the instructor and is a complex task (Koehler et al., 2013). TPACK is relevant to gain an understanding of the theory behind any changes in the teaching methods, in relation to adding BL in the classroom. TPACK explains the teaching skills and knowledge required to teach and use technology. There has been research to define the overlapping knowledge in the TPACK framework, however not much work has been done to study the context in which instructors apply their knowledge (Phillips, 2015). Application of TPACK is valuable in providing better professional development opportunities. However, only measuring instructors knowledge does not explain differences in the ways technology is accepted or rejected in specific contexts (Phillips, 2015). TAM has proven to be a useful tool for looking into the reasons why

instructors use certain technologies (Sánchez-Prieto, 2017). Therefore, as discussed below in further details, I employ TAM in this study to probe into instructors perceptions at MS.

### ***2.6.3 Technology Acceptance Model (TAM)***

Davis (1989) cited research from mid 1970's to mid 1980's and showed that during this period understanding why people accept or reject technologies was a challenging issue. According to Davis the impact of users beliefs and attitudes on the usage of technology had already been studied by the mid 1970's (Davis et al., 1989). Researchers had also studied the impact of external factors on users internal beliefs and attitudes towards technology, and technology implementation process (Davis et al., 1989). However, Davis (1989) saw a need to develop a user acceptance model. Therefore, based on Fishbein and Ajzen's (1975) theory of reasoned action (TRA), Davis (1989) introduced the technology acceptance model (TAM). TRA is a well proven successful model to study any human behaviour. Therefore, an adaption of TRA to introduce TAM to look into technology usage behaviour was feasible. TAM is less general and is specially designed to study computer usage behaviour (Davis et al., 1989).

TAM is a theory that models users acceptance and usage of technology (Fathema et al., 2015). The theory looks at why people accept or reject technological tools. As illustrated in figure 1. below, TAM suggests that perceived usefulness (PU) of technology and perceived ease (PE) of use has an effect on users perception of technology (Davis, 1989). PU of a user is defined as an increase in performance, and that the use of a certain information system contributes to performance. PE of use is defined as a user's expectation from the information system to be free of effort. PU of technology and PE of use has a positive effect on user's perception (Davis, 1989). If

the users do not find technological tools useful and are not easy to use, they will have a negative perception of those tools. Davis (1989) proposes that based on user's feedback information systems can be modified and improved to increase user acceptability.

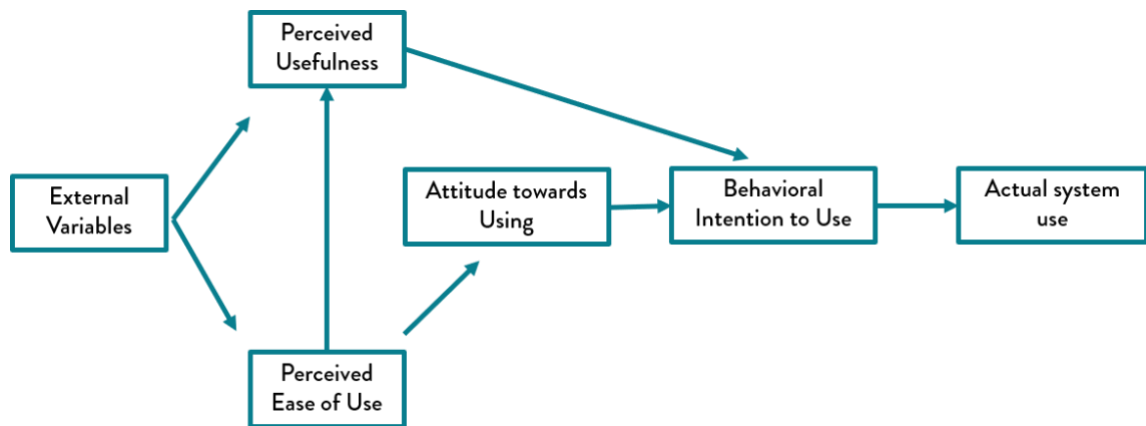


Figure 1. Technology Acceptance Model (TAM) (Davis et al., 1989, p.985)

TAM looks at internal beliefs and attitudes, and how external factors effect beliefs and attitudes towards technology. Hong et al. (2002) stated the external factors that influence perceptions of technology. Most of the external factors they listed were related to self-efficacy, knowledge of technology usage, and the way technology has been designed. External variables in TAM extensions applied in research by academics are “anxiety (ANX), content quality (CQ), experience EXP), facilitating conditions (FC), individual innovativeness (II), perceived enjoyment (PE), self-efficacy (SE), service/system quality (SQ), and social norm (SN)” (Jimenez et al., 2020, p.10, Table 2)

TAM was developed to study users acceptance to technology, it was not developed specifically to study application of technology in education, and has not been used much by instructors in an educational environment (Fathema et al., 2015;

Nath et al., 2013). The application of TAM in this study will contribute to knowledge and application of TAM in an educational environment.

TAM can be applied in this study to reveal instructors perceptions at MS. TAM can also be employed to see how external factors effect instructor attitudes towards technology. TAM focuses on five main points, “these constructs are perceived usefulness, perceived ease of use, attitude towards using, behavioural intention to use, and actual use (Davis, 1989)” (Wright, 2018, p.6).

## **2.7 Gaps in BL research**

Based on the literature review above I have compiled some of the gaps in research in regard to BL. While online instructional technologies are becoming more popular in HEIs, instructors opinions and beliefs regarding online learning tend to be generally negative (Patchan et al., 2016). Moreover, despite instructors significant role in the BL implementation efforts, “little has been published regarding faculty application of hybrid teaching” (Porter et al., 2016, p.17).

There are many gaps in research that need to be filled in order to understand the whole process of BL implementation and instructors perceptions (Means et al., 2013). Research in BL is also needed, that could guide instructors to shift their attitudes towards BL (Sheffield et al., 2015; Rolfe & Gray, 2011). This study made a contribution to instructors perceptions of BL and effects of perceptions on implementation of BL, as discussed in chapter 5.

There is also a gap in research on instructor motivation with regards to BL (Schechter et al., 2017). This study contributes to knowledge on instructor motivation in relation to using the BL approach. The effect of student’s perspectives in a BL environment on instructors perceptions also needs to be studied further (Çardak &

Selvi, 2016). Therefore, this study reports on the effect of student's perspectives on instructors perceptions of BL.

All of these factors necessitate the shift of our focus to the instructors because students are always the case. Therefore, this study intends to address the problem of the minimal research focus on instructors in the field of BL, with a goal of supporting their motivation through a model design and evaluating the model in the context of a higher education institution in the Middle East.

### Chapter 3 - Methodology and Methods

In this chapter, I give a detailed outline of the research design. The first section on methodology talks about the reason for using a qualitative approach, then describes the worldview. Data collection methods used are interviews with instructors, class observations, narrative of each instructor, and 1 FGD with students. Consequently, I talk about data collection, issues faced in data collection, the participants, and approaches to data analysis and ethical considerations.

#### 3.1 Paradigm

My worldview was developed naturally at my previous position as a teaching assistant, leaning more towards constructivism. While teaching labs in the past at my institution, I was always interested in finding out individual student perceptions and how their perceptions would effect my perceptions as an instructor. At an early stage in my career, I realized that one approach does not apply to all the situations. This study revealed opinions and perceptions and discovered what things are done and how they are done to achieve institutional goals. The social constructivist paradigm is the most suitable as it focuses on individual opinions and perceptions of human beings to understand social phenomena (Mack, 2010).

The main principle of constructivism, also referred to as interpretivism, is that

"research can never be objectively observed from the outside, rather it must be observed from the inside through the direct experience of the people" (Mack, 2010, p.8).

This is applicable to my study. As I studied individual instructor perceptions and captured individual experiences. The ontological assumptions are that for the same event or experience, each individual might interpret it differently, leading to different perceptions about the same experience. This fits perfectly within the scope

of this study that captured individual experiences and found out the perceptions of different instructors about the use of technology in their classroom. As BL does not have a unified definition, Kintu et al. (2017) go on to say that the job of the researcher in a constructivist paradigm is to clarify the application based on the view taken from different participants. It is important to hear directly from the instructors. The addition of capturing student views adds value and confirms instructors views. Assuming that an educational intervention is PU or not PU does not make sense. Each scenario needs to be treated and researched on an individual basis in order to find out views of the instructors.

### **3.2 Ontological and Epistemological Assumptions**

The ontological assumptions applied to this study are as follows:

- People interpret and make their own meaning of events.
- A certain event can be perceived differently by different people.

The epistemological assumptions applied to this study are as follows:

“Knowledge is gained through a strategy that respects the differences between people and the objects of natural sciences and therefore requires the social action” (Grix, 2004, p. 64). “Knowledge is gained through personal experience” (Mack, 2010. P, 8).

As mentioned by Mack (2010) interpretive research does have limitations: as it does not use a more positivist approach of verification, the results cannot be applied generally to situations. The aim of this study is focused to benefit my institution, instructors, leaders, and policy makers. However, I agree with Mack's opinion that the findings can be beneficial to readers in similar situations, and they can learn from my findings. In my case, I will find out perceptions of instructors in a MS based in the

GCC countries, on the use of technology with entry-level students. These findings can be used by instructors in similar situations, who would connect better as readers in similar situations. As the study is focused on my institution, findings will benefit the instructors within the institution, and the recommendations can be used to improve practice or develop a better understanding.

### **3.3 Qualitative Methodologies and Justification**

The constructivism paradigm employed in the research informed the decision to adopt qualitative methods. According to Rahman (2016), qualitative methods provide a detailed description of the participant's feelings, opinions, and experiences. As instructor perception was a major variable in the current research, a qualitative type of research was able to better capture the experiences and perceptions, as compared to quantitative methods. Additionally, interpretivism aims at understanding the human experience in specific settings.

According to Rahman (2016, p.106), quantitative reasoning tends to take “a snapshot of a phenomenon”. It quantifies variables in specific space and time. As the positivism paradigm rarely accounts for how the social aspect is shaped and maintained, qualitative approaches are preferred as social aspect is an important component in investigating perceptions. Furthermore, qualitative approaches have a flexible structure that could be constructed and reconstructed.

Education is a diverse and ever-evolving field that requires a scholarship of multi-disciplinary nature. According to Hartas (2015), investigations of education phenomena receive perennial criticism of their perceived usefulness and relevance to education policy and classroom action. It is further mentioned that the methodologies employed would effect the usefulness of any research. Hartas (2015) mentions that



research methodologies focus on the specific ways, strategies or methods which are used to understand social aspect.

The research methodology was developed based on my research questions. The questions focus on finding instructors perceptions of BL approaches in their classrooms. In this study, I am looking at a few specific individuals, and I did not intend to carry out a general statistical analysis at a mass level. Studying specific individual responses was needed in order to find out what is going on within a small team of instructors. As the same instructors will keep teaching the same courses, the only change is the introduction of the BL approach. Findings and recommendations will assist the instructors and the administration to understand the current setting better.

Despite the rise of online and mobile interviews, I preferred to use face to face interviews for the data collection. One of the reasons is that a face to face interview enabled me to keep the focus on the interviewee. In contrast with mobile methods, the interviewer is more able to control the interview process. Moreover, it was possible to further probe the interviewee during the process. Also, face-to-face interviews reduced the risk of obtaining false or inaccurate information from the interviewee (Madziwa, 2016).

With the small population of participants and my wish to find out instructors perceptions about the use of technology in their classrooms, I considered a qualitative approach to be most suitable for this study. A qualitative approach can be used to study people's reaction to a certain action. Another important factor in qualitative research is that it does not aim to change variables or introduce new ideas, it aims to study participants in their natural setting. According to Denzin and Lincoln (2000),

qualitative researchers study things in their natural settings. In the case of this study, it was important to study instructors perceptions in their current setting.

Qualitative data is used to explain or understand a group of people or situation. Berkwits and Inui (1998) define qualitative research as “a form of inquiry that analyses information conveyed through language and behaviour in natural settings. It is used to capture expressive information not conveyed in quantitative data about beliefs, values, feelings, and motivations that underlie behaviours” (Berkwits & Inui, 1998, p.195).

This definition of qualitative research was applicable on this study, where I studied perceptions of instructors within their institution. Therefore, I choose to carry out instructor interviews, class observations, narratives, and student FGD to assist me in better understanding instructors motivations and beliefs.

Some of the other approaches to qualitative inquiry and research design that are not used, as identified by Creswell, Hanson, Clark, and Morales (2007), include ethnography, phenomenological analysis, grounded theory, and case studies. Ethnography involves a researcher being immersed in the target participant's environment to understand their goals, cultures, challenges, and motivations. Similarly, a phenomenological study requires the researcher to describe a phenomenon. Grounded theory aims at providing an explanation or theory behind the events unlike the preceding three methods of inquiry which only describe activities or events. Therefore, grounded theory cannot be applied to this study. Case studies are applicable even in quantitative research as they explain an organization or entity through a variety of data sources.

The current research focuses on an understanding of BL in one institution. Therefore, the case study approach is the most applicable in reference to Creswell's

typology in qualitative research. Starman (2013) identifies case studies as among the leading qualitative methods of inquiry used in education research. A case study is defined as the description of a case and events. Guest et al. (2012) claim that the three commonly used methods in qualitative research include focus group discussion, interviews, and observations.

### *3.3.1 Justification of Case Study as a Methodology*

Case study is a suitable method, when

1. "The aim of research is to find answers to 'why' and 'how types of questions
2. It is not possible to control behavioral events, Contemporary events are studied." (Teegavarapu et al., 2008, p.4)

The essence of this study is to find instructor perception of BL. To find out instructors perceptions, there are many how questions. Like how instructor perception of BL effect implementation, how does student's perspectives influence instructor perception of BL. Secondly, the behavior of instructors are not controllable, and contemporary behaviors of instructors are to be studied. The case study method was particularly suitable for this study, due to the very small size and diversity of participants. It will be convenient to go in details. Case study design can be divided into three simple phases

1. Define problem, select data collection method and select sample.
2. Collection of data
3. Analysis and conclusion

Case study is also beneficial to carry out a detailed investigation targeted towards an institution, or a group of instructors or students (Yin, 2003). Behaviors of participants are studied in a case study. A qualitative case study ensures that data is

collected from one source (Baxter & Jack, 2008). The typical methods used for data collection are observations and interviews. To get a detailed insight of the participants, once data is collected, the investigator, interprets the information. And finally based on their findings make recommendations. It is important to be careful when analyzing data, and not to focus on each data source separately. The aim of a case study is to converge all the data collected as one, in order to understand the overall case (Yin, 2003).

Yin (2003) base his study on constructivist paradigm. Constructivists claim that facts are dependent on perceptions. A case study approach enables the researcher to get the real story directly from the individual. The researcher gets a chance to observe the views and perceptions of the participants, and get a better understanding (Baxter & Jack, 2008).

Limitations of case studies are that the results cannot be applied generally. As the case study focuses on a single person or community. Therefore, results are more suitable for the specific population. Another limitation is that due to the small number of participants, the researcher could be inclined towards specific results, and have independent opinions of the situation.

The different types of case study approaches are, explanatory, descriptive, multiple-case studies, intrinsic, instrumental, and collective (Yin, 2003). For the purpose of this study, I applied the descriptive single case study. The descriptive case study was suitable as “this type of case study is used to explore those situations in which the intervention being evaluated has no clear, single set of outcomes (Yin, 2003)” (Baxter & Jack, 2008, p.548). This study explored the intervention of technologies in teaching and there was more than one outcome evident.

### *3.3.2 Methods in The Qualitative Approach and Justifications*

This study employed, one-on-one interview method with the instructors, class observations, a focus group discussion (FGD) with the students, and narratives of each instructor. This will show an outside reader or investigator the effects of change throughout the whole system. The interview and FGD are chosen ahead of observations in this study because of circumstances and the nature of data needed. Instructor narratives are presented, to give the readers an idea about the perceptions of each instructor.

Narratives are useful in explaining meanings people assign to their experiences (Salkind, 2010). Instructor narratives were beneficial for explaining instructors experience with BL and gave a good introduction to the readers of each instructors' background. I have been very conservative when writing the narratives. As the instructor community is very small at MS, and it is a close knitted community. Mentioning specific details about the instructors will reveal their identities. Narratives give an account of the personal and human experiences over time, and narratives are people's stories as told by them (Etherington, 2011).

Qualitative techniques were important to find out opinions and perceptions that this study tried to uncover. FGD is a qualitative approach used to gain a better understating of social issues. It is also a good method to work with purposely selected group. Conversely, interviews and FGD are less time consuming as they are faster data-gathering processes, and interviewing is considered to be the primary method used in qualitative research (Oltmann, 2016). Interviews give you a good idea of the other persons perceptions (Oltmann, 2016). Additionally, it is possible to seek clarifications and thus a deeper understanding of the phenomenon. Similarly, FGD stimulates conversations and can generate a large amount of information. Moreover,

participants would be more likely to be comfortable in giving out information when they are grouped with people of the same interests. FGD with the students were carried out to find out students views of the BL approach. The students in the FDG were taught by the same instructors interviewed. Therefore, instructors perceptions of BL can be confirmed based on student responses.

Using observation as a data collection method requires time in order to effectively capture it. In the case of this research, the observation method used was to observe how instructors delivered BL in class. Class observations can be used to describe instructional practices and assist in getting a better understanding of the teaching practices (Waxman, 2020).

### **3.4 Study Population**

Starman (2013) claims that the idea of a representative sample in investigating a case is not fundamental. Instead, cases or samples are selected because they are interesting or unusual. However, he also mentions that there is an advantage of selecting a representative sample from the population in a case study. In selecting representative samples, there is a possibility of identifying new theories that previous studies might have missed. The sample selected were 12 entry year's instructors and 16 entry level students.

#### ***3.4.1 Student Participants***

The total class size and the population approached were 16 Middle Eastern students attending the entry level year who enrolled at MS. All 16 students entered MS after graduating from local high schools. Student participants were taught by the instructors interviewed. It was important to get the students' perspectives. As students views and responses could assist in reaffirming instructors perceptions of BL or reveal any potential disparities. Table 1 (summary of student information) below

gives a brief summary of student participants. Age of the student participants ranged from 18 to 19 years old, the exact age of the student participants is not given in order to protect their identities. I contacted the 16 students via e-mail to introduce the study, email addresses of students are available to us as staff members of the institution. In the introduction email, the students were given an option not to respond to the email. Only 5 students volunteered to take part in the FGD (see appendix 4 for focus group discussion guide). These were the only students available for the FGD. As with the instructors, student participation was entirely voluntary, and all participants were made aware of the study aims and intentions prior to obtaining their approval to join the study. The introductory email contained details and information about the study.

<b>Student Name</b>	<b>Gender</b>	<b>High School Attended</b>	<b>Age Range</b>	<b>Ethnic Background</b>	<b>Enrolment Year at the Medical School</b>
Emily	Female	Local high school	18-19 years old	Middle East	First Year
Karen	Female	Local high school	18-19 years old	Middle East	First Year
Harold	Male	Local high school	18-19 years old	Middle East	First Year
Sharon	Female	Local high school	18-19 years old	Middle East	First Year
Yuki	Female	Local high school	18-19 years old	Middle East	First Year

Table 1: Summary of student information

### ***3.4.2 Instructor Participants***

A total of 12 instructors were contacted, and 8 volunteered to take part. The instructors are 8 full-time employees who have been teaching at the MS for more than five years, and they have been applying BL for more than a year. The exact number of years they have been employed at the medical school are not mentioned in order to protect instructor identities. The instructor's participation was voluntary. The

instructors are qualified and have long term teaching experience. Table 2 (summary of instructor information) below gives a brief summary of instructors. Not much information can be provided in order to protect their identities. Initial contact with the instructors was made via email. I met with instructors one-on-one at MS to conduct the interviews. Utilizing semi-structured interview formatting to gain insight into the research questions of this study (see appendix 3, interview questions), allowed participants the flexibility to elaborate upon topics that they considered significant.

The interviews took from 40 minutes to an hour, depending on the information the instructors wanted to discuss. Two of the eight instructors also shared their publications, that were related to my questions. After each interview, a time was booked to attend classes for observations. The record sheet for class observations (see appendix 5) was used as a guide. However, taking notes for the class observations was more feasible. For a sample of class notes see appendix 6. Quality data would have been attained if I could attend two to three lectures of each instructor, to observe the instructors' using BL in the classroom. However, due to time constraints, semester ending, and instructors allowability, I was only able to observe four instructors' one-hour classes.

After getting the ethics approval (see appendix 1&2, for ethics approvals) to carry out research from my institution I found out that being a medical school recording instructors interviews required special ethics approval taking another three months for the approval. Therefore, handwritten notes of the interview were taken. If I had recorded the interviews, it would have greatly helped me make better notes and be able to watch the interview later on. From the eight instructors, six participants came from the Faculty of Science, while the remaining two were of the Faculty of Humanities.



Instructor Name	Gender	Subject Specialty	Level of Education	Years of teaching experience
Sodium	Male	Science	Doctorate	15
Calcium	Female	Science	Doctorate	21
Magnesium	Male	Science	Doctorate	20
Radium	Male	Science	Doctorate	22
Resium	Female	Humanities	Masters	9
Iron	Female	Science	Doctorate	21
Tin	Female	Science	Doctorate	20
Gold	Male	Humanities	Doctorate	21

Table 2: Summary of instructor information

### 3.5 Data Collection

Data were collected through interviews with the eight instructors, class observations of four of the eight instructors and a focus group discussion (FGD) with five students. Narratives, based on interviews, and class observations of each individual instructor are also provided. Before participants joined the study officially, the study's aims and intentions, and the participants' role and rights related to their participation were discussed with each participant face-to-face. The interviews, class observations and the focus group discussion were all conducted in-person, at the Medical School, for the convenience and comfort of the participating instructors and students. There were no unexpected changes or challenges associated with the study's setting. The student view played an important role in my analysis. According to Eliot & Associates (2005), a focus group should be large enough to generate a discussion, but not too large that some participants feel left out. In my case, I was able to recruit 5 volunteers only and had 1 FGD consisting of the 5 students.

Questions asked in the interview were designed in order to gather the perceptions and experiences of MS instructors related to use of BL, as well the perceptions and impacts which they have noted regarding their implementation and

use of BL in their classrooms (interview questions are attached in Appendix 3). The first question allowed participants to give their opinion on BL. The questions that followed allowed instructors to describe the impact BL had on their teaching, the classroom environment, and the students. Question 5 “How well have the students adapted to BL?” (appendix 3), responses from instructors to this question, assisted in finding out how student response to BL effected instructors perceptions.

Student focus group was conducted in a casual manner which encouraged students to share their authentic opinions and experiences related to using BL in their foundation-year classes. Questions were designed to gather insight into whether or not students perceive BL as being useful to their studies, or not. FGD was conducted at the MS, at the convenience of the five students participating. While conducting the focus group, the researcher collected handwritten notes and recruited a student volunteer to assist in the moderation of the session, in order to facilitate an efficient and effective focus group discussion.

### ***3.5.1 Instructor Interviews***

I introduced the study to the instructors via email. The PIS forms were attached to the introductory email. Signed consent forms were collected before the interview. However, before I started the actual interview, I introduced my research and gave them some brief background about the study. During the interview, I took detailed handwritten notes. Upon completion of each interview, the notes taken were confirmed with instructors, to make sure the information captured is accurate. Notes were shared with the participants to makes sure, that, the notes capture participants point of view accurately (Creswell et al., 2007). This is an important practice in research as it reassures that the participants agree with the data. The interview started with allowing the instructors to describe how BL was introduced in their class. The

class observations were a continuation of the interview, as they were suggested by all the four instructors. The instructors believed that I would get a better idea of their teaching style by observing their classes.

### *3.5.2 Class Observations*

Observations are a research method where the researcher observes a group or individuals in their natural settings (Vidhiasi, 2018). Class observations were important to observe the instructors in the classroom. The observations provided an opportunity for the researcher to see the instructors teach the students in a BL environment. The observations also provided insights and clarifications to statements made by the instructors during the interviews. During the interview I was able to book four instructors' classes to be observed, to get a better idea of the information collected during the interviews. Class observations were a great opportunity to see instructors in action. The limitations were that only a single one-hour session was observed per instructor. Class observations were feasible for four instructors only, as the other four instructors' classes had ended. So, given the time frame available, class observations of these instructors were not possible.

The instructors' way of teaching, the use of technology, interaction with students, and the classroom settings were observed, and noted down in the form of hand-written notes (see Appendix 5 for an example). As the class observations were a continuation of the interviews, data from the observations were combined with the data collected from interviews. The class observations confirmed instructors' approach to BL and were an opportunity to see the instructors in action. The class observations proved instructor's claims of their experiences with BL.

### ***3.5.3 Student Focus Group Discussion***

It was important to gather the student response to BL, to see whether they perceived it to be useful to them or not. Also, the student responses would assist in confirming instructors perceptions. I introduced the purpose of my research and informed the students how their opinions will be used. Students were introduced to the study and sent the PIS forms by email. Consent forms were collected before the FGD was conducted. A focus group discussion guide was used to aid the discussion (see appendix 4). The FGD had the main objective of attempting to get an opinion from students on what they actually thought about the BL approach, and whether they were actually benefiting from it or not. Their opinions were also important to confirm instructors perceptions of BL in their respective classrooms. The initial questions were general and open-ended (see Appendix 4), in order not to intimidate the students. The general questions were used as icebreakers. Subsequent questions were designed to capture specific experiences with BL.

None of the data collected was recorded, all data was collected in the form of hand-written notes, and then further transformed as typed notes on the computer. The transcripts and notes collected from the interviews, focus group discussion, and classroom observations make up the primary data for this study. The following section will provide a detailed description of the strategies utilized in order to organize and analyse this data.

### **3.6 Data Analysis**

According to Hartas (2015), qualitative methodology is likely to engage with inductive reasoning where theories would emerge from the data. It works from specific observations to broader generalizations. The research process involved in this research follows inductive reasoning.

A thematic analysis is carried out in order to identify specific patterns. The data, which were collected through eight interviews, one focus group discussion, and four classroom observations, were analysed using qualitative thematic analysis strategies. A narrative of each instructor is also presented, to give the readers an idea about the interest and perceptions of the individual. Instructors' narratives are important as each individual instructor has a unique background. The narratives give an idea of their background, interests, perceptions and views about teaching and BL approach, although details are limited in order to protect their identity.

As I strived to gain insight into the perceptions of individuals regarding BL, the exploratory nature of thematic analysis was considered highly suitable to the study. Thematic analysis enables the researcher to inductively extract meaning, themes, and patterns from within the data (Maxwell, 2012). The various stages of analysis that were conducted upon the data, resulting in the findings are discussed in the next chapter.

Following the collection of data, the researcher conducted a comprehensive preliminary reading of the various primary texts, enabling him to gain a broad understanding of the total population of data and make any initial observations regarding patterns and trends within the participants' responses. To assist with initial reading, data analysis and to get a grasp of the main idea, at first the codes were assigned to each sentence in Excel see Appendix 7 for a sample (assigning codes and color codes to each sentence). Each code was also assigned a colour for better visual distinction. Appendix 8 (definition of each colour code) is a sample of some of the colour codes assigned and their definitions. Although, this process assisted in getting a good understanding of the data, organizing, gathering codes, and visually going back and forth in Excel increased the chances of error. Therefore, the data was

imported into NVivo software, which facilitated the organization and coding of emergent themes and patterns. Data was analyzed using NVivo software to facilitate multiple stages of careful coding and organization of the data, an extract is attached in appendix 9 (NVivo coding book screenshots) and appendix 10 (NVivo coding screenshots). Choice of codes was driven by the reoccurring patterns within the text. Once all the text were assigned codes, then the codes were joined together under relevant themes. Data was imported in NVivo, codes were assigned based on the most common and relevant reoccurrences. Then information from all the participants related to that specific code were gathered together. For example, if the code assigned was student engagement, then all the sentences related to student engagement were gathered under this code.

The resulting themes which were discussed were inductively identified according to the trends and patterns which emerged throughout the qualitative thematic analysis process.

The analysis proceeded with multiple phases of reading the data and categorizing it according to inductively identified trends and patterns. Following the completion of data coding and organization, the resulting codes were considered once more, as the researcher went through all the notes and checked the codes. This re-examination of the data enabled the researcher to cross-check analysis results, ensuring that the emergent themes remained representative of the data, and the findings were organized clearly and comprehensively. The themes which resulted from these various stages of analysis, which was conducted with careful consideration and categorization, will be detailed in the results chapter to follow.

### **3.7 Ethics approval and considerations**

All participation was voluntary and informed consent was obtained from each participant prior to initiating the interview, class observations or focus group discussion. Participants were made aware of their rights as a participant and were reminded that they were able to withdraw from the study at any time. Ethics approval for both the institutions UOL and MS were fulfilled (Appendix 1 & 2). Blank spots indicate deleted names of the institutions, signatures, names, titles, and the country name in appendix 1 & 2, in order to maintain anonymity. There were minimal risks associated with participation in this study. I do not teach the students, so they did not feel pressured to participate. I am a staff member at MS; I have lateral power relations with the instructors, they consider me as their peer. Therefore, I assumed that the participants will not feel anxious when I would interview them or observe their classes.

Participants were given the choice to discontinue and be interviewed at a later day of their choice, if required. Participants' names were kept anonymous, and pseudonyms are used in all reports. When working with students, they were briefed about the study and participation was voluntary. Each participant was given a consent form that outlined the research background and project outline.

### **3.8 Trustworthiness**

The researcher took various steps to ensure the reliability and trustworthiness of this study. First, prior to the beginning of the study, approval from the researcher's academic institution's review board as well as approval from the MS to proceed with conducting the study were obtained. As an individual employed by the Medical School, the researcher was able to utilise his familiarity with the institution, its staff and its students to design the study effectively. The researcher was careful to ensure

that his familiarity with the institution and the individuals associated with it would not pose any threat to the legitimacy of the study. Student and instructor participants were selected who had no direct connection to the researcher, so that any potential biases related to previous knowledge or power-structures would be avoided.

Additionally, the researcher was explicit in his intention for the study to be a case study representative of the institution selected, rather than the broader population of education institutions. As a result, the findings of this study are not directly transferable to other institutions or experiences. However, by providing a detailed and transparent description of the data collection and analysis methodologies, the researcher strives to enable replication of the study in other settings. In this way, the methodologies and findings of this study remain relevant and useful for the broader education community.



## Chapter 4 - Results

As the role of technology in the classroom has expanded in recent decades, blended learning (BL) has become a popular subject of discussion within education related fields. This study strives to gain further insight into the use of technology in the classroom, by studying the perceptions and experiences with BL of educators. The study utilises the population of entry level students and instructors at the Medical School (MS) in a Gulf Cooperation Council (GCC) country. This chapter discusses the emerging themes. As a case study, I first start by presenting each instructor's narratives as a case, given that they have different backgrounds. Then the emerging themes from instructor interviews and class observations are discussed. Next the emerging themes from student FGD are discussed. And finally, a summary of response to research questions is presented. A through discussion addressing the research questions is presented in the next chapter (chapter 5). Through the use of interviews, class observations, narratives and student focus group discussion, the researcher aimed to answer the following research questions in the next chapter:

1. What are the factors that influence instructors' perception and motivation around BL approach?
2. How do instructor's perceptions of BL influence the implementation of BL approach in the classroom?
3. How do students' perspectives influence instructors' perception of BL?

To facilitate answering these questions, narrative profiles of each individual were drawn up and thematic analysis was conducted upon the interview, class observations and student focus group responses. Class observations data was combined with the data collected from interviews. Data was analysed using thematic analysis strategies which enabled the researcher to inductively identify relevant

themes and patterns from within the texts. The main aim of the study is to find out instructors perceptions on use of BL and gain insights on some factors that influence the use of BL.

The following sections will address narratives, the themes, and patterns that emerged from the data analysis, and that are relevant to one or more of these questions. Each theme will be described in detail and supported with the inclusion of textual references and excerpts. Prior to delving into a discussion of the themes that resulted from the population of interview responses and class observations, the researcher will first provide some context for the thematic analysis findings. By discussing each interview participant as individual case studies for the use of BL in the classroom. As every instructor uses BL differently, it is important that further insight be gained into the ways that the participants in this study experience and perceive BL strategies.

#### **4.1 Participant Narratives**

In order to gain insight into the use of BL in the classroom, semi-structured interviews were conducted with eight instructors at the Medical School. Before the start of the interview the interviewees were informed of the meaning of BL for the purpose of this study. All instructors taught full-time at the institution, however their use of and perceptions toward technology in the classroom varied. Background information about each instructor will assist in contextualizing the perspectives on technology usage. As the faculty population at the MS is small and giving precise details about each instructor can reveal their identity, therefore I will not give precise details about each instructor. In the following sections, each participant will be discussed in turn. Narratives below are an introduction to each instructor and is not my interpretation of them. It is an introduction to the instructors based on the

interviews, class observations, and in some cases their publications. Their publications cannot be cited or shared in order to protect their identities. More details will be discussed in the following sections when I discuss the emerging themes. When I mention personal communications of a participant with quotation marks, I am referring to the comments from the instructor during interviews. Definitions of the technological tools mentioned below, are provided in chapter 1.

**Participant 1: Dr. Gold.** Dr. Gold is an English language instructor at MS with a particular interest in education technology. Dr. Gold has eleven years of College level teaching experience in the United States of America, and ten years of teaching experience at MS. In addition to utilising BL in the classroom, Dr. Gold has also conducted extensive research into educational technologies and has published papers on the subject. Dr. Gold shared his work and publications during the interview. Dr. Gold's publications showed an interest in the use of technology and innovation in teaching, evidence and reference to his papers cannot be provided as it will reveal his identity. Most of his research and publications revolve around innovation in teaching. His work reveals that he is well versed and trained in the usage of technology for teaching. "In this day and age, it makes perfect sense to have some teaching done through the use of technology" (Dr. Gold personal communications). It is evident from Dr. Gold's statement, that he is an advocate of the BL approach. During the interview Dr. Gold said that "personally I think it is the best for us and the students, it is very helpful". Here Dr. Gold is referring to BL, and that it is the best approach. Dr. Gold is referring to the PU of BL, he perceives BL to be useful for both himself and the students. As Dr. Gold has a personal interest in using technology for teaching, he can positively impact student learning, by applying his experience in class, and to his course.

“Online books are provided. A lot of test taking is done online, no paper is used” (Dr. Gold personal communications). Dr. Gold relies heavily upon BL in his classroom, implementing a paperless work approach to his students. All work is submitted electronically, and any resulting feedback is provided to the students via the internet, technologies used by Dr. Gold are mentioned below. All course assignments and quizzes are accessed through the internet, and all other written communication is conducted online, as well. The most common assignment in Dr. Gold's course requires course readings and writings, all of which are accessed and submitted electronically, thereby greatly reducing paper usage in the course.

Respondus Lockdown and CANVAS (institutional LMS) were the technologies highlighted by Dr. Gold as being regularly utilised in his course. Respondus Lockdown is a software that enables instructors to conduct quizzes electronically, ensuring that students are unable to seek answers on other internet sites. Respondus is provided by the institution and the use of Respondus in your course is optional and is not mandated by the institution. Through the use of Respondus Lockdown, students' internet browsers become locked, so that users are unable to open additional browsers or webpages for the duration of the test. CANVAS was also relied upon heavily in the classroom, utilised in multiple ways. As mentioned by Dr. Gold “technological tools I use is CANVAS, as it saves a lot of preparation time” (personal communications). Reading materials and other course information is provided to students through CANVAS, quizzes and feedback are uploaded to CANVAS by the instructor, and communication with the students is conducted through CANVAS, as well.

Although students are strong advocates for educational technology today, Dr. Gold highlighted students' initial hesitancy to embrace technological tools in the

classroom. Initially Dr. Gold had to discontinue the use of BL because he did not see the PU of BL. Dr. Gold did not perceive technology to be useful in the past as the students were not trained to use technology. "It didn't work earlier because the students were not trained to use technology" (Dr. Gold personal communications). Dr. Gold did not mention any specific tools that he introduced in the past. But he did mention that the students were not ready in the past, while the students are much better equipped now. For example, he said that when reading materials were posted online in the past the students came to class without reading. Dr. Gold also said that the students did not check their emails regularly in the past as compared to students these days.

Dr. Gold did mention PE of use, he assumed that the ease of communication is due to each student owning a smart phone and they can easily access their emails and calendars on the phone. This agrees with Eryilmaz (2015) that student's technology literacy creates a better classroom environment for implementing the BL approach. "Previously it was not user friendly" (Dr. Gold personal communications). Dr. Gold stated that in the beginning, using technology in the classroom did not feel user friendly and the technology was perceived as difficult to use. Over time, the student's comfort and familiarity with the technology improved, greatly facilitating overall classroom efficiency and success. Dr. Gold stated that it has been his experience that students are quick to embrace technology in the classroom, and that they would welcome expanded usage of BL in the classroom. "Blended learning is the up and coming thing, we can spend more time on this, and get the students more involved" (Dr. Gold personal communications). Additionally, Dr. Gold suggested that students should be encouraged to take initiatives in introducing technology into their learning, such as by suggesting learning tools or apps on their phones that have the potential to

enhance learning. Dr. Gold did observe improved student performance when using technology. Dr. Gold gives the students a diagnostic test at the beginning and end of each semester, he observed better performance and results in student performance when technology was being used. Dr. Gold personal communications "The students have adapted very well, they are learning more which makes them happy and also makes me happy." When Dr. Gold mentions that they are learning more, this translates to better outcomes and student performance. He expressed the opinion that with the aid of technology many things were made easier. For example, Dr. Gold mentioned that "students would come in the past and say that we do not remember you mentioning this in class", while everything is documented online now, and communication is very fast. Overall, Dr. Gold, was pleased with the BL approach and perceived it to be a useful tool for himself and the students.

Dr. Gold did apply the BL approach because he saw both PE of use and PU of technology. For Dr. Gold, the reasons for implementing BL is ease of communication, paperless work, and ease of access to information. Dr. Gold had tried using BL in his class at MS in the past, and he did not get great results. Because he believed BL to be beneficial, he was persistent and was successful in applying it the second time. However, the implementation of technological tools, produced good results. Dr. Gold already perceived BL to be a useful approach, as its' part of his research and he is an advocate of the BL approach. He perceived BL to be useful and comfortably applies it to his classroom, getting good results.

**Participant 2: Dr. Sodium.** The second interview participant was a science instructor who has been an instructor at MS for more than five years. He has a total of 14 years of teaching experience in the United States of America. As mentioned by Dr. Sodium during the interview while initially hesitant to utilise technology in the

classroom, following participation in training a few years ago, Dr. Sodium has since become more adept and comfortable using technology in his classroom. Dr. Sodium personal communications “BL was introduced in my class after I attended a training 3 years ago”. The training sessions that Dr. Sodium attended were around the science subject that he teaches. The trainer used BL techniques to train the attendees. The training sessions attended introduced Dr. Sodium to the BL approach.

Professional support and training to instructors is described as one of the motivating factors (Torrissi-Steele & Drew, 2013; Porter et al., 2014). Dr. Sodium was motivated to use technology in his classroom based on the professional training that he attended. “It has had a positive impact in general, it gives the students a different dimension, a different way of thinking” (Dr. Sodium personal communications). Dr. Sodium perceived that BL introduces a fresh perspective to students and that use of technology is useful in his classroom, as it creates a better learning environment. Hence Dr. Sodium sees the PU of BL in his classroom. According to TAM, PU of technology encourages teachers to implement technology in their classroom (Cardak & Selvi, 2016).

Dr. Sodium’s perception that technology is useful was based on his positive experience from the training. This experience and the buildup of perception lead him to implement technology in the classroom. “It is a fun way of learning” (Dr. Sodium personal communications). Sodium highlighted the ability of technology to make learning fun as a primary reason that he felt inspired to embrace technology in his own classroom. Dr. Sodium mentioned that during the training he saw how the instructor transformed teaching to be fun, by using interactive technology. Dr. Sodium said that “I use CANVAS mostly for communications and keeping in touch” (personal communications). Dr. Sodium also learned that using technology is a way to

interact with the students. For example, as demonstrated at the training, through the relatively simple use of technology, a traditional lecture was able to become interactive and engaging for the students. Dr. Sodium had not used technology for teaching in the past. Attending the training session introduced him to the idea that technology can be engaging. In the example mentioned above he said that the instructor used simple online polling to get feedback, and short online science games. "It did certainly motivate me" (Dr. Sodium personal communications). He personally enjoyed the training and felt motivated. Dr. Sodium began introducing technology in his classroom in attempts to improve the motivation of both himself and the students.

Technologies utilised by Dr. Sodium include Plickers, Respondus Lockdown, CANVAS, and Case It. Similar to the use of Dr. Gold, Dr. Sodium utilises CANVAS for communicating with the students and keeping their class updated regarding course information. Reading materials and other assignments are uploaded to CANVAS and made electronically accessible to students. As observed during class observations within the course lectures, Dr. Sodium utilises Plickers and Case It in attempts to keep students engaged with the learning material (observation, 2018). As an example of how a meeting of Dr. Sodium's course might proceed, the instructor would first expect the students to have prepared for the course by reading the materials provided and assigned through CANVAS (observation, 2018). As the class begins, Dr. Sodium will assign some interactive problem-solving activities to the class, relevant to these readings (observation, 2018).

Once students are finished with problem-solving, they are assigned a Case It project (observation, 2018). Referring to Case It Dr. Sodium said that "it produces data equivalent to testing done in a lab, we use the simulation data for analysis and understanding in the classroom" (personal communications). Case It produces the



data equivalent to that which would normally result from the kind of testing done in a lab, utilising simulation data for analysis in a considerably shorter amount of time than a traditional experiment would require. Dr. Sodium uses it in class to demonstrate scientific lab simulations, that would take up a lot of preparation and executing time. While it can be demonstrated immediately on Case It, where students can see how the lab procedure is carried out. Case It also generates data, that Dr. Sodium uses to teach students. In Case It, students are sent information for example a disease to read, before coming to class. Then the instructor can choose from a number of options in Case It and give the students different options for analysis. For example, he can change the sequencing of a certain bacteria and see the change in numbers and statistical analysis is displayed. If these same changes were to be applied in a real lab, it will take days to see the change. While in Case It, they have a pool of statistical data, that can be viewed, downloaded, altered and changes can be viewed immediately. During class observations I observed that it was very easy to log into Case It. Dr. Sodium had the virtual experiment assigned on the system. The lecture right before the experiment covered the required theory (observation, 2018). Carrying out the virtual experiment saved time.

There was no time required to set up the experiment (observation, 2018), though it is important to point out that the same group of students also carry out real time experiments during lab hours that are taught separately. For the purpose of this topic Dr. Sodium wanted the students to be exposed to the experimental side of the topic. As I observed in the classroom, due to the availability of Case It, Dr. Sodium was able to demonstrate it, within the time frame available to teach the class (observation, 2018). The two main benefits observed from virtual experiments were, saving time and immediate demonstration of the practical side, without facing any

issues of errors or failing to carry out the experiment. Dr. Sodium said that learning was made quick and easy, it was immediate, they did not have to wait for weeks to get results and discuss. Again, in order to keep the class engaged, Dr. Sodium also utilises software such as Plickers. Plickers enables the students to respond to questions electronically, with the ability to keep their identities anonymous (observation, 2018). Dr. Sodium was using these tools because they were available and assisted in his teaching.

According to Dr. Sodium the holistic benefits of using the different types of technology were “motivated students and better student engagement” (Dr. Sodium personal communications). In line with this quote Dr. Sodium said that when I am standing and just lecturing, the students loose interest. While when I introduce activities, it gets the students more engaged and motivated. Dr. Sodium reported that from observation he saw that “student engagement increased, he found a new level of student engagement as compared to when he was using other teaching methods” (Dr. Sodium personal communications). For example, Dr. Sodium observed that students were more open and discussed the topic more, while they were carrying out the virtual experiments. Dr. Sodium observed that the activities he introduced were well received. Dr. Sodium personal communications:

I definitely say more student engagement in class, and this is what I want.

Sometimes new ways of teaching make the students think and it changes the dynamics of the class, which is a good thing, and it also motivates me as a teacher.

In my opinion Dr. Sodium is trying to imply that it is not all about the numbers and grades when it comes to student performance, some change in the

teaching method can change the dynamics of the class and that by itself is an achievement for Dr. Sodium.

It is Dr. Sodium's perception that student attention spans seem to be shorter than in previous generations, and as a result, it is more important than ever to utilise tools that facilitate the instructor's ability to engage their students. Dr. Sodium clearly wants more student attention. Dr. Sodium is able to get student attention by using technological teaching tools.

Dr. Sodium implemented BL because he found the BL approach to be fun and he personally felt motivated to teach. He implemented BL in his classroom in an attempt to motivate himself and the students. The implementation of BL saved time, and technology could be used to show immediate results to the students, making it very easy to teach. Dr. Sodium had never used technology in his class, attending a training course inspired him to apply the BL approach. Dr. Sodium perceived BL to be motivational, fun, PU of technology, and PE to use.

**Participant 3: Dr. Calcium.** Similar to Dr. Sodium, Dr. Calcium is also a science teacher who has been at MS for more than five years. Dr. Calcium has a total of twenty-one years of teaching experience in the United States of America. Dr. Calcium first began utilising BL strategies four years prior to this study, hoping to improve the efficiency of her work. "I started using technology.....saved time and less pressure on me and the students" (Dr. Calcium personal communications). Dr. Calcium is the only user of some Virtual Lab software (VLS). The software will not be named to protect her identity. VLS comprises of modules, and each module has various topics outlined under it. VLS offers virtual labs for each topic allowing students to carry out experiments online and generate data. The students get to witness the experiment taking place, and also collect data, which can then be used to

carry out the analysis (observation, 2018). "I felt that it is not that monotonous" (Dr. Calcium personal communications). It is Dr. Calcium's perception that introducing technology into the classroom has enabled her to diversify the classroom tools, thereby making the course more interesting to students than pencil and paper, or a mere whiteboard, was able to. This change and addition of diversity has also had a positive effect on Dr. Calcium, at a personal level.

While Dr. Calcium expressed the sentiment that technology has improved the students' classroom experience, however she also suggested that students have yet to tap into the full potential of BL in their learning experience. Dr. Calcium personal communications "most of the students are not aware of the BL approach and don't understand the value and benefits, for some of them its more work." As I interpret it, Dr. Calcium is trying to say that instead of benefitting from the assistance that technology provides, some of the students in her class express the view that it is extra work for them. Dr. Calcium goes on to say, "then there are some who do not appreciate the effort, so it becomes very hard to use a BL approach with them" (personal communications). Here Dr. Calcium does not have a PE of use view of BL. As evident by her quote above, that this view of BL not easy to use, is formed due to the student's response to the BL approach. It is the instructor's belief that students need to take initiative for their learning and cannot rely wholly upon the instructor to "spoon feed" them knowledge. Dr. Calcium stated that, in her opinion, students do not understand the full value and benefit of technology in the course. Although Dr. Calcium did not highlight specific BL tools, she stated that students need to take their learning seriously and understand that they are expected to complete electronically assigned work independently from the classroom.

In terms of impact on student performance, Dr. Calcium observed that the students are more engaged when a BL approach is used. Here Dr. Calcium is referring to students paying more attention to the material being taught. However, Dr. Calcium's inclination was more on how she benefits from applying a BL approach in her classroom. And she testified that "using these softwares certainly influences me in a positive way" (Dr. Calcium personal communications). Here Dr. Calcium is referring to the VLS that she uses in the classroom. As discussed above, in view of TAM, Dr. Calcium did not perceive BL to be easy to use. In her quote in the discussion above Dr. Calcium found BL to be hard to use. This perception of BL not being easy to use was formed due to the students not appreciating the effort put into the BL application. Student's acceptance of BL was important for Dr. Calcium, and she felt discouraged to use BL when students did not respond as she expected.

**Participant 4: Dr. Magnesium.** As with the previous two participants, Dr. Magnesium is a science teacher who has been teaching at MS for longer than five years. In total he has 20 years of teaching experience. Dr. Magnesium classifies himself as a traditional teacher and prefers a whiteboard over an electronic tool in his classroom. "I am a traditional teacher use to teach using a white board and marker" (Dr. Magnesium personal communications). Here, Dr. Magnesium is referring to the way he use to teach in the past.

Although Dr. Magnesium personally prefers traditional teaching methods, he has adapted over the years, beginning to incorporate some technology into his course instruction. For example, Dr. Magnesium now uses CANVAS to communicate with students, and upload lecture videos online using PANOPTO. Dr. Magnesium personal communications:

I use CANVAS for communication, posting reading materials, posting lecture handouts, lock down browser for quizzing every week, for classes and for labs, posting recorded videos of my lecture.

Dr. Magnesium began utilising technologies because he saw the need for it among the students. As he mentioned, Dr. Magnesium personal communications “I wanted to be consistent with what other teachers were using and have them prepared and use to this way of communication and teaching for future classes.” As more and more teachers began utilising technology such as CANVAS for communication with students, the students became familiar with such forums for communicating with their instructors, and Dr. Magnesium adapted to facilitate the students' preferences. The instructor began uploading lecture recordings online after noticing that some students were filming lectures on their personal devices. In order to avoid further distraction in the classroom, Dr. Magnesium decided to record the lectures himself, and utilised PANAPTO to do so. Dr. Magnesium (personal communications) “the students can watch later and benefit from them”, the main idea behind recording lectures was to have them available for students at a later stage for referencing. Dr. Magnesium (personal communications) also highlighted “I can face the students, walk around, and never have my back to the students” the use of PowerPoints has facilitated his lecturing, enabling the instructor to remain frontward facing to the students at all times (observation, 2018). Dr. Magnesium perceives BL to be useful as it allows him to face the students and feel more connected.

Dr. Magnesium expressed his belief that there is no substitution for hard work; in order for students to learn, they simply need to read and do the work. It is Dr. Magnesium's perception that adding technology to the classroom does not necessarily add value to the course. At a personal level Dr. Magnesium felt more energised when

using the BL approach. As he mentioned “for me using technological tools gave me more energy” (Dr. Magnesium personal communications). Here Dr. Magnesium is referring to more energy to teach.

**Participant 5: Dr. Radium.** Another science instructor who has been an instructor at MS for more than five years is Dr. Radium. Dr. Radium has a total of twenty-two years of teaching experience. Dr. Radium stated that he uses BL strategies as necessary, listing CANVAS, YouTube and Quizlets as the technological tools used in his course. Dr. Radium continues to use traditional tools of instruction, such as a whiteboard, during lectures, but is also willing to use technology when needed. Such as using CANVAS for communication, and You Tube videos to demonstrate his work. Dr. Radium says that this is a need these days, to keep up with the teaching system. Dr. Radium believes that this is the way forward and is a requirement to use technology in the classroom. Dr. Radium (personal communications) “BL for me has sped up teaching”. Despite his preference for traditional methods, as evident from the above quote Dr. Radium stated that the use of BL enabled him to improve the efficiency of his teaching, allowing him to cover more course material in less time.

The ability to use technology in order to engage students and make learning fun was also discussed. Dr. Radium utilises Quizlets in the classroom regularly (observation, 2018), believing it to be a fun and useful way for students to interact with the subject matter. Quizlets are interactive flash cards, short quizzes or fun games, that break down a complicated scientific problem into simpler easy to understand concepts.:

But from what I observed I can certainly say that due to the modules I provided online, I can see that their understanding improves, due to

repetition skills are improved. They do better now by mastering the concepts, problem solving, modules and quizlets.

Dr. Radium uses quizlets, because they are simple and easy to use. And the students learn difficult concepts easily by using the quizlets. Dr. Radium assigns modules along with the quizlets, and he says that by practicing the modules, the students are able to attain mastery in the topic. Dr. Radium uses BL because of PU of technology, and PE of use. The perceived usefulness of BL Dr. Radium mentioned above is that it saves time. The perceived ease of BL Dr. Radium mentioned was that it simplifies concepts and makes it easy for students to learn.

When it comes to the student use of technological tools during lectures, Dr. Radium highlighted the necessity of maintaining the traditional tools of learning. For example, a photo taken of a PowerPoint slide does not have the same ability to facilitate learning as handwritten notes. "There has been research that taking notes helps students remember and understand concepts much more than just reading" (Dr. Radium personal communications). Dr. Radium argued that such basic learning skills, such as note taking, simply cannot be replaced. In terms of student performance, Dr. Radium observed improvement in student understanding. The improvement is because of the way Dr. Radium has designed the use of online resources. Referring to the students Dr. Radium (personal communications) said that "they keep doing the questions until they master and then take the quiz, if they score below 90% on the quiz they need to go back and redo the module until they master the skills". Dr. Radium set very high standards of a 90% score on the online quiz specifically to force the students to repeat and gain mastery. Dr. Radium was pleased with the availability of the online quiz, that allowed the students to keep taking it until they achieved high



scores. Dr. Radium found BL to be useful, because of student success in mastering skills through the online quiz.

**Participant 6: Dr. Resium.** Dr. Resium has been an instructor at MS for more than five years. Dr. Resium teaches a course on researching techniques (RT). Before the introduction of this course RT, instructors from various courses would call Dr. Resium for one-hour sessions, to teach students database and searching techniques and sessions given were not focused. "We saw a need for an organised course that would meet the student requirements" (Dr. Resium personal communications). Sessions given in different courses were based on instructor's requirements in each course. Dr. Resium saw a need for an organised course that would meet students requirements. As a solution, Dr. Resium established this course. RT is taught to entering students, the purpose of RT is to equip students in information finding skills.

Online tools are used to teach students to improve their research skills. The tools used for teaching are ILLiad, it a resource sharing management software, students are trained on ILLiad to search and also use the inter library loaning system. Google Scholar, and ProQuest are used for searching journals, eBooks and similar resources that are available online. And citation management software RefWorks, is used to teach students citation compiling and organising skills. RT course equips students with lifelong learning and searching techniques. A flipped classroom model is also applied, where students can spend time on the material ahead of the actual teaching session. In 2015 Dr. Resium carried out a research to determine the results of RT course and its effect on student performance. According to Dr. Resium's research students showed improvement in their researching skills. Dr. Resium personal communications "Students actually, showed improvement in using evidence from

outside sources, which improved their writing skills and background knowledge". Dr. Resium perceived BL to be useful, as it assisted in improving student performance.

Dr. Resium is a strong advocate for utilising technology in the classroom and feels that it greatly facilitates her own course, benefiting both students and instructors. Some of Dr. Resium's comments about the BL approach were "It is a must have", "for me it's all positive", and "it is very helpful for me" (Dr. Resium personal communications). It was stated that through the use of BL in the classroom, Dr. Resium's experience was greatly improved through an increase in organisation and in efficiency. Technology reduced the amount of time necessary to organise course materials and facilitated Dr. Resium's communication with students. Dr. Resium perceived BL to be useful and also easy to use.

Dr. Resium highlighted the ability for students to view and complete coursework at their own pace as a primary factor in forming their opinion regarding BL. Dr. Resium expressed the belief that all instructors should embrace technological tools in the classroom, as it adds value to the course instruction and saves considerable amounts of time for the instructors. It was also mentioned by Dr. Resium that as more instructors embrace BL strategies, collaboration between instructors will also be enhanced via the various online teaching platforms made available to them. Dr. Resium PU of BL were, BL adds value to the course instruction, saves time, and better communication with students and other instructors.

**Participant 7: Dr. Iron.** Another science instructor, Dr. Iron has also been teaching at MS for more than five years. She has a total of 24 years of teaching experience. Dr. Iron is against the use of BL strategies in the classroom, perceiving technology to be a waste of time and a distraction to the students. Dr. Iron (personal communications) "I am against it's inappropriate usage". This opinion is formed

through previous experience utilising BL strategies, having applied BL approaches in her classroom while instructing at a different institution. It was her experience that students were less able to concentrate in class, as students were utilising the technological tools for distraction rather than engagement with course material. Students being distracted with use of technology, effected Dr. Iron's perception of BL. Dr. Iron's perception of BL not being useful is formed based on student response to technology. Dr. Iron stated that PowerPoint is the only technological tool utilised in her lectures. Students are penalised for utilising technological tools in Dr. Iron's lectures, including the use of a laptop to take notes. The penalising strategy is that she has her assistants observing students and taking notes. Dr. Iron personal communications said that "10% of my grade is on being professional. Being professional means coming to sessions on time, behavior in class, and one of them is using a phone in the classroom, its distracting". Based on behavior in class and reports from the assistant's students lose points towards the final grade.

Dr. Iron also emphasised the potentially negative impacts technology can have upon students, stating that technology enables students who are already less likely to engage in the classroom to further "hide" behind the technology. It is her belief that entering students who are at the beginning stages of their education need to learn traditional skills, such as discipline and professionalism, prior to introducing technology to their educational toolbox.

**Participant 8: Dr. Tin.** The final participant was a science instructor at MS, who has been at the institution for more than five years. In total she has 20 years of teaching experience. Similar to Dr. Iron, Dr. Tin does not believe in the use of technology in the classroom. "Blended learning does not impact my teaching as I do not see any benefit in implementing it" (Dr. Tin, personal communications). Dr. Tin

stated that BL does not have an impact on her teaching ability and that she perceives no obvious benefit in implementing technology in the classroom. Dr. Tin substantiated these beliefs with the statement that she has previously received positive feedback from students, who enjoy and benefit from her traditional methods of instruction. Dr. Tin said that “I actually have great feedback from students, who enjoy, benefit and learn from my way of teaching.”

Dr. Tin believes that implementing technology in the classroom will only introduce additional challenges and complications to the course, particularly in a course which does not require the use of technology. The challenges of implementing technology that Dr. Tin pointed out were more work for herself and the students. Dr. Tin also mentioned that if she needs to implement technology in the classroom, then she has to take training for it, and due to her teaching commitments, she does not have the time for getting trained. Dr. Tin personal communications also said that “It is a bit frustrating for me to force extra implementations and initiatives just for the sake of it, because everyone else is doing it.”. It was stated that while other instructors may be comfortable with and benefit from technology, Dr. Tin does not feel obligated to introduce technology into her own classroom. Dr. Tin did not perceive BL to be useful or easy to use. Ultimately, it is her perception that traditional learning strategies remain more beneficial to students in her course than BL strategies. Dr. Tin might use the institutions provided LMS only as required, maybe to post the final grades, or minimal required communications. As mentioned by her she does not use it in class.

Now that some context has been provided into the instructors' individual perceptions of and experiences with utilising BL strategies in their classrooms, a description and discussion of the themes and patterns which emerged from the qualitative thematic analysis of interviews, class observations and focus group

responses will follow. Section 4.2 discusses themes resulting from instructor interviews and class observations. And section 4.3 discusses the themes resulting from the student focus group discussion.

#### **4.2 Themes Resulting from Interviews and Class Observations of Instructors**

The resulting themes show that the perceptions of a BL approach vary. Some instructors prefer to use a BL approach and are fully in favor of using it. There are others who have preconceived and justified reasons for not using BL. These views will influence the implementation and use of BL in the classroom, as I discuss below. This discussion of resulting themes will begin with a description of those themes that pertain to the perceptions and experiences of instructors at the MS. Each inductively identified theme will be discussed in turn in the sections that follow. Before the start of the interviews each instructor was given an introduction to the meaning of BL that I imply in this study. The themes were:

(T1) BL enhances course instruction and instructor efficiency;

(T2) Impact on student;

(T3) Institutional support for BL;

(T4) Success of BL dependent on students;

(T5) Perceptions of instructors not willing to use BL.

Themes which were identified through the analysis of student focus group responses will be discussed in section 4.3.

##### ***T1: Blended learning enhances course instruction and instructor efficiency.***

This theme reflects comments on how the application of technologies improves and enriches the whole teaching experience from the instructor's perspective.

**T1A: Enhancing the classroom experience.** In their discussion of the benefits associated with BL, five out of the eight instructors expressed the sentiment that utilising BL strategies in the classroom enhances their teaching, as well as the students' learning experience, and improves efficiency of their course instruction. For example, Dr. Gold stated, "In general, BL greatly helps and assists the whole teaching process... Learning and communication was streamlined and improved". In this statement Dr. Gold is referring to the teaching materials posted online, the learning content, schedules, and communication. He felt that due to using technology everything was very well organised and easy to follow for Dr. Gold and also for the students. This agrees with research that shows that BL is easy to use both for the students and instructors (Kenney et al. 2010). Dr. Gold also highlighted the time-saving benefits of utilising BL in the classroom:

It is a great initiative that has helped both me and the students. In this day and age, it makes perfect sense to have some teaching done through the use of technology. The amount of time it saves is amazing.

Much of Dr. Gold's response highlights the benefits experienced through the introduction of CANVAS in his course, facilitating student and teacher accessibility to materials and assignments, and improving overall efficiency. Dr. Gold also included CANVAS in his discussion of technological tools used in the classroom. Dr. Gold stated, "A technological tool I use is CANVAS, as it saves a lot of preparation time and it automatically checks work for plagiarism through Turnitin."

Although highlighting technology in general, in this specific statement, Dr. Gold is pointing towards the wholistic benefits such as better teaching process, better learning and communication. In considering the ways in which instructors integrate

blended learning in their classrooms, six out of eight of the interviewed instructors stated that CANVAS is utilised in their courses.

Dr. Radium provided a more descriptive example of the ways that BL has improved the classroom efficiency:

BL, for me, has sped up teaching, I can cover more material in less time, so the depth of my teaching has stayed the same, but the breath and reach has increased. For example, for each topic I assign modules. Over a semester I have a total of 12 modules that the students need to cover, which count towards the final grade of the subject. Each module starts with an introduction, then me demonstrating and teaching, explaining the idea.

Dr. Radium above is saying that before he had to cover all the material for the 12 modules in class. Now with the availability of posting reading materials online, he can assign work on CANVAS. Dr. Radium can spend more time discussing and answering questions in class. As described in the excerpt above, utilising BL has facilitated Dr. Radium's ability and efficiency in teaching the various modules associated with his course, enabling him to electronically offer some components of the topics and assignments through CANVAS.

Similarly, Dr. Resium summed up her opinion with using technological tools that, "It's a must have. Time saving technology is everywhere and we should make good use of it." Above Dr. Resium is expressing her observations from the class and is expressing that due to technological tools, reach of her work has increased. Dr. Resium said that instead of reading and practicing searching skills in class, students are now able to read outside class and practice searching skills at home. While class time is used to ask relevant questions and further improve on their skills. Dr. Resium

provides examples of the ways that BL serves to enhance both the learning and teaching experiences. Benefits she mentioned were, improvement in material organisation for instructors, and increased accessibility and flexibility for students. In particular, Dr. Resium highlights the benefits associated to conducting online research by using different technological tools that have been introduced in her course. For example, reading books are made available online for the students to read. Reading material is given online, links to e-books are given, and then this work is linked to related activities in class to follow up. For example, Dr. Resium described her experience with CANVAS thus:

CANVAS is my lifeline for this course. I can communicate with students, I can give them material ahead of time, I quiz them, and CANVAS is connected to their calendars, so it prompts them ahead of time. It is very helpful for me.

Dr. Radium, Dr. Gold and Dr. Resium above highlight CANVAS as a useful tool facilitating BL in their course, where they uploaded reading materials, assignments, and feedback to students. They also highlighted that CANVAS improves efficiency and communication. Similarly, in providing an overview of their perceptions towards BL strategies in general, Dr. Resium stated,

For me it is all positive. It makes my life very easy because everything is organised online; it is less work for me trying to organise material. Everything is made available online and students can view it at their own pace, in their own time.

Dr. Resium here mentions BL as a positive experience and has a good perception of the BL approach. She finds BL to be very easy to use and she is implying that her workload has decreased because of using BL.



Time in the educational institute is of great value, and research shows that BL application saves time and is a more efficient way of teaching students (Garrison & Kanuka, 2004). If pre-reading material is posted online, class time can be used for a deeper analysis of the topics (Garrison & Kanuka, 2004; Delialioglu, 2012; Bowyer, 2017). In a class when the instructor is teaching live, time is valuable for them and they want to deliver as much as possible efficiently. Sheffield et al. (2015) report that using efficient technology frees up time in the class and increases one-on-one instructor student interactions. As mentioned above all three instructors, Dr. Gold, Dr. Radium and Dr. Resium's statements agree with Schiefele et al. (2015), that using technology frees up time in the class, giving them more class time with the students. Makhdoom et al. (2013) carried out a study on 121 students in a medical school in Saudi Arabia to see the effect of BL. Makhdoom et al. (2013) found out that the students adopted well to the BL approach and it was an efficient way of teaching. These findings agree with literature that BL is a new concept in the Middle East and its' application results in higher student satisfaction, information retention, enhancement of the overall classroom and learning experience (Sajid et al., 2016; Makhdoom et al., 2013).

PU of technology and PE of use has been described as one of the factors that influences the acceptance of technology. As evident from the discussion above Dr. Gold, Dr. Radium and Dr. Resium saw the PU and PE of use of technology and expressed the benefits of using the BL approach. These findings agree with TAM's extension external variable system quality (SQ). SQ is defined as "the accuracy and efficiency of the system" (Jimenez et al., 2021, p. 10). That is when instructors see SQ in a technological tool they perceive it to be useful and potentially easy to use.

**T1B: Motivating Instructors.** When sharing their view of the enhancements provided by incorporating BL in their classroom three instructors considered their teaching enhanced through an increase in energy or motivation. Emotional wellbeing of the instructors is important and is reported to contribute positively to instructor's personal well-being (Hagenauer & Volet, 2014). Dr. Sodium stated, "BL has proven to be very beneficial for me...Using different teaching techniques certainly motivates me." Dr. Sodium here is referring to the different modes of teaching. He enjoys the change in teaching and introducing technology in class gives him personal motivation. Dr. Calcium also said that she felt more engaged with the students, when using the BL approach. Dr. Calcium said that it was refreshing to use new methods of teaching, she felt energised and motivated to use the BL approach. Dr. Magnesium stated, "for me, using technological tools gave me more energy... technology is beneficial, it certainly helps". Dr. Magnesium is referring to the drive and emotional charge that he gets from technological tools, he feels energised to teach. Jun-jun (2016) argues that emotions are involved in learning and teaching, and that instructor's emotions play an important role. In order to meet demands, instructors need to manage their emotions for enhanced delivery of the content (Jordan et al., 2007). Both Dr. Magnesium and Dr. Sodium are referring to the personal benefit of using the BL approach, where they themselves feel motivated, and charged for teaching. And this charge and motivation comes from the use of technological tools. It is a positive change for the instructors to use something different in class. It is a personal achievement on their side, to be able to use the latest methods of teaching. Chigona et al. (2014), investigated factors that motivates educators in South Africa, and found out that technologies play the role of catalyst among instructors. It gives them motivation, satisfaction and a sense of achievement (Chigona et al., 2014).

***T2: Impact on students***

This theme reflects comments about the various benefits of the BL approach and the impact of BL on student learning. This theme also looks at the effect of student performance on instructors' perceptions of BL. As reported by the instructors, some of the benefits that emerged were, better accessibility for students, better student engagement, and better student performance. When instructors view students benefitting from BL, this creates a positive perception of using the BL approach.

**T2A: Better Accessibility for students.** Although this theme is similar to theme T1A: Enhancing the classroom experience. However, theme T1A highlights the direct benefits of BL to the instructors as perceived by the instructors. And this theme discusses the benefits of BL to students, from the instructor's perspective.

Student accessibility in this context refers to the access to learning material and content. Three of the eight instructors described examples of improved accessibility to learning material as a result of incorporating BL strategies in their courses. For example, Dr. Resium summarises these sentiments: "Everything is made available online. Students can view it at their own pace, in their own time". Dr. Resium mentions the availability of material to students, and that they can view it at any time. This is a great facility for the students according to Dr. Resium. As in the past in her courses, the students did not have access to material online. An Dr. Resium would distribute reading material in class, while currently she posts it online before class and it is always there for the students to view. This is relevant feedback for my study as this shows that Dr. Resium perceives using BL as useful. Instructors' perception of student success plays a motivating role for the instructors. It can also be concluded that when instructors see student success due to BL approaches, this creates a perception that technology is useful and easy to use. Similarly, Dr. Gold

describes his experience with student accessibility being improved by BL with greater detail:

While now, all the queries can be answered on the website, answers given are documented and available anytime of the day or night for the students to have a look, announcements are posted or emailed.

The schedule of different activities is set on the online calendar, which makes it easy for the students to plan ahead.

When Dr. Gold mentioned this, he showed great importance to these benefits. He reported that in the past when material was not posted online, and schedules/calendars were not shared online. Dr. Gold said that there use to be a lot of miscommunication in the past. Dr. Gold also said that students use to make excuses that we forgot, or we did not hear you say it, I asked you this and you said that. While now Dr. Gold mentions above that everything is documented, and he showed great relief and joy while saying this. Research shows us that better accessibility by students to learning material greatly improves the whole learning process.

Hill et al. (2016) report that better accessibility of information to students is one of the conditions for the use of online learning systems. Online learning platforms provide access to information to students, enabling students to learn at their own pace and provide flexibility of learning (Al-Busaidi & Al-Shihi, 2012). According to the instructors, better student accessibility to learning material translates to better student engagement, and better student engagement translates to better student performance. Therefore, the next two themes discuss student engagement and student performance.

**T2B: Effects of student engagement.** Three out of eight instructors suggested that student engagement had improved as a result of incorporating BL strategies in their courses. For example, Dr. Calcium stated:

I can confidently say that there is more student engagement, and it also gets me engaged as a teacher, it is exciting both for me and the students to do activities using the software mentioned, it makes life much easier. Using VLS certainly influences me in a positive way.

Here Dr. Calcium is expressing that when she uses VLS in class, the students show interest in using it and she feels positively about it. Dr. Calcium is also implying that when she sees students benefitting from her approach, she feels reassured. That she is on the right track, in terms of the way she is teaching. It can also be said that Dr. Calcium clearly sees the PU of technology, when students perform as expected in a BL environment. During class observations, I observed that after giving a lecture, she asked the students to sit in groups of four (observation, 2018). Once the students were settled, she launched the system online. The students had already read about the topic before coming to class (observation, 2018). Once the students started working in groups and were asked to solve the problems given online. They started discussing and asking relevant questions. Dr. Calcium was also very engaged and showed great enthusiasm working with the students (observation, 2018). Getting the students engaged is an important task for an instructor.

Similarly, Dr. Sodium stated:

In general, from observation I found out that student engagement increased, I found a new level of student engagement as compared to

when I was not using other teaching methods, I observed that the activities I introduced were well received, I definitely say more student engagement in class, and this is what I want. Sometimes new ways of teaching make the students think and it changes the dynamics of the class, which is a good thing, and it also motivates me as a teacher.

Dr. Sodium reported better student engagement in class when he started using BL. Above, he mentions that he “found a new level of student engagement”. He was quite pleased with this initiative, he felt refreshed and said that I was looking for a change. This change gave him a positive boost in his teaching. In both the quotes above by Dr. Sodium and Dr. Calcium, not only did the instructors confidently state that student engagement had indeed increased, but also that it had positive effects on themselves as well. Donkin et al. (2019) carried out a study on 28 undergraduate students studying in science and laboratory-based courses planning to enter medical school. Donkin et al. (2019) sample students were very similar to the group of students at MS, also undergraduate students studying science and laboratory-based courses with Dr. Sodium and Dr. Calcium. Donkin et al. (2019) concluded that applying the BL learning approach to teaching science and laboratory keeps the students engaged and motivated and is an effective and economical way of teaching. Both Dr. Sodium and Dr. Calcium’s statements quoted above agree with Donkin et al. (2019). Thus, blended learning not only serves to improve classroom engagement for the students, but this engagement benefits the motivations and energy of the instructors as well, as discussed above in T1B.

**T2C: Impact on performance.** Three instructors stated explicitly that they felt that student performance was improved in some way, as a result of incorporating

blended learning strategies in their course. This is based on the instructor's own observations and statements about the use of BL and its effect on student performance. For example, Dr. Calcium summarised these sentiments in her statement that, "blended learning allows information to be stuck, it enhances learning." Here she is referring to the content that she provides through different sources. The lectures, VLS, and reading material online via CANVAS. Dr. Calcium in her quote above is saying that by using BL the students get to see the information in different format, rather than just her notes. She gave an example of the VLS that she uses, it displays graphical images of the information being taught in theory. The images assist the students to get a better understanding of the material. And according to Dr. Calcium's observations this has greatly assisted in improving student learning and hence their performance in class and quizzes. Dr. Calcium claims that from her experience, bombardment of content from different sources promotes the information to stay with the students. Dr. Calcium's claim agrees with research that shows that using videos and images improves student performance and satisfaction (Stockwell et al., 2015).

In Dr. Sodium's reflections, there are similar sentiments expressed, that BL strategies help to reinforce students' knowledge and overall learning ability:

It has had a positive impact in general, it gives the students a different dimension, a different way of thinking. It reinforces what I am teaching, so when I lecture about the material and all these additional activities is just more support for me, and more good information for the students.

The implications by Dr. Sodium are that BL provides assistance by presenting the same content in a digital format or in the form of a game. This slight difference makes the students think differently and assists them in getting a better understanding.

Dr. Sodium concludes that this additional assistance is helpful for him and good for the students.

Dr. Resium who teaches a researching techniques (RT) course, published research on the application of BL in her classroom and carried out an evaluation of students before and after applying the BL approach. Dr. Resium reported an improvement in student performance. Dr. Resium reported:

When testing towards the end of the course to see if information is used effectively to accomplish a specific purpose, students showed an increase from an average of 82% in the past to an average of 86% after taking my course. In general student performance improved after applying this approach.

Here Dr. Resium is referring to the BL approach. As mentioned in instructor narratives above, she offered this course on demand. That is, she was requested by other instructors to offer a course in RT. Dr. Resium had not used BL in her course in the past, but she started using it because of the ease and usefulness. And later it became a requirement for her course. She said that using online databases is the best way to teach these days, as most of the published items are available online.

### ***T3: Institutional Support***

Instructors feel supported by their institution regarding utilising blended learning strategies and classroom setting. This theme gathers together comments on the availability of the teaching tools and the support provided by the institution. This includes the flexibility that the institution provides in setting up classroom furniture, and the effect it has on the instructors and their teaching. The theme highlights how flexibility and support by the institution is welcomed by the instructors. Of the eight participants, four expressed the view that they feel supported by their institution when



it comes to utilising blended learning tools and techniques. Take for example Dr. Magnesium's description of the institutional support provided:

We are a small and well-equipped institution. I know that if I made a request, it will be met, the institution is very supportive. We do not have an institutional policy on using a BL approach, it is optional, we get to design and teach the way we like.

This statement demonstrates the role which the institution plays, supporting instructors as necessary, but allowing instructors to be flexible in their utilisation of technological tools in their classrooms. Dr. Magnesium's statement shows that he feels at ease and is not pressured by the institution to use the BL approach. Dr. Radium expressed similar sentiments, stating:

We do not have a special office that trains faculty members or gives them advice and suggestions on what to use in teaching, but our IT department is very helpful in providing support. There is always support when requested, we know they will come and help us.

Thus, although there is not a strict policy or framework for incorporating technological tools in the institution's classrooms, there is sufficient support available to staff, upon request.

Dr. Calcium and Dr. Sodium both offered more succinct descriptions of the available support from the institution in their responses. Dr Calcium stated, "We do have support from the institution. IT has provided some solutions for us" and Dr Sodium agreed, "There is certainly support available from our IT department". The BL approach requires use of technological tools, and to use these tools, instructors require support, without support they will not be able to do their job properly (Allen et al., 2012; Kraft & Blazar, 2018). Instructors stating that support is available, is

valuable information, indicating that the institution as a whole supports educational initiatives.

Four out of eight participants expressed an interest in changing or a necessity to change their physical classroom environment related to their implementation of blended learning strategies. Changing classroom setup requires permissions and support from the institution. For example, Dr. Sodium described his changes thus:

I modified the way my classroom looks, I couldn't teach in the same lecture hall setting. I usually teach in a seminar room style, where students sit in groups casually and I can move around and teach them, also observing them how they absorb my material. My lectures are open for discussion, I never keep talking and not let the students discuss, I leave it open for other students to talk and explain the problems. I see the students for 2 semesters for 3 hours per week, and two thirds of the sessions I use teaching tools to support my teaching.

Dr. Sodium is referring to Case It, when he mentions the teaching tool above. When Case It is being used in class Dr. Sodium needs to walk around and needs the seminar room set up to allow this. He was able to rearrange his classroom in such a manner as to foster further student discussion and engagement. Dr. Sodium was thankful that the institution is flexible to let instructors rearrange the class furniture according to their needs. Other responses related to the physical classroom space that indicated less satisfaction were:

I personally do not like the shape of the room...but there is no choice, we have to compromise with what we have and use the rooms provided (Dr Iron).

In terms of the set up, I would like to be in a smaller room... where I am in the center and the students are sitting close in a semicircle. It's more comfortable, it's more intimate and it promotes discussion (Dr. Magnesium).

While these responses did not offer as much detail as Dr. Sodium's, they both depicted the sentiment that they would prefer a different classroom style in order to promote student engagement and overall learning. Changing the physical size of the classroom is not practically feasible for the institution. Where possible they would like the instructors to be given the flexibility from the institution to choose their own classroom setting.

#### ***T4: Success of BL dependent on students***

Instructors feel that the success of blended learning strategies is dependent upon the students themselves and use of blended learning in the classroom is not beneficial. Although four out of eight instructors mentioned above declared that BL contributed to improved student performance in their courses, some of the other instructors believed that BL strategies are able to improve student learning only for those students who take responsibility. This type of response tended to describe examples of either one or a minority of students in their classes who utilised the BL strategies well and were able to reap the benefits of such technological tools in the classroom. This implies, however, that there were some students who did not benefit from the instructor's use of BL strategies in the course. For example, consider Dr. Radium's statement:

For students who used the material wisely, a BL approach is good for them, but not all of them use the materials wisely. One thing that I will remove is recorded lectures, 50% of the students skip classes

due to lecture being available later on. They miss out on class discussion and better understanding and sitting in a real lecture. Initially when I was transitioning the students did not take to it well, but now with the modules being available online, this model is working for me.”

Dr. Resium depicted a similar challenge in her classroom, stating:

For giving them material ahead of time to read published on CANVAS, the students did not like the idea of making it compulsory for them to read material ahead of time and they would admit in class that we did not check CANVAS and did not read ahead of time.

This was a challenge Dr. Resium faced with the students. Her expectations by posting the material online were that the students will read the material online. However, not all students met her expectations. Hence the actual results depend on the individual student and not on the instructor. “The teacher can only do their best by providing the resources. It is dependent on the individual to utilise the resources provided wisely. For the one who read the material ahead of time found the activity to be useful.” (Dr. Resium, personal communications)

Again, Dr. Resium highlights the fact that one student was able to thrive with the use of BL strategies, however the remainder of the class did not take responsibility. Another instructor attributes the variability of students perceptions of the helpfulness of BL to their different personality traits: "Shy students hide behind technology and it's a disaster for them" (Dr. Iron personal communications). Dr. Iron thought that shy students look for an excuse not to participate, and if they are given a gadget or device to work on, the shy students will hide behind technology. In contrast

if the students are working in a face-to-face discussion group, the shy student will be forced into minimal participation. While Iron expressed similar sentiments to Resium that BL is useful for some students but not all, her response differs in the factors she considers as relevant to the likelihood of success.

Based on instructor observations and experiences, three out of the eight instructors also suggested that while students use of blended learning strategies was challenging at first, more recent attempts to utilise technological tools in the classroom have been relatively successful. For example, Dr. Calcium stated:

Initially it was a bit difficult when I introduced VLS a few years ago. I think the students were not used to it, but students in general have gotten used to using technology in their daily life fairly quickly in the past few years, so now I see the students being more receptive to the tools I use.

Dr. Calcium said that she cannot use a lot of technology in the classroom as she teaches a science course, so she needed to find the right blend for her course. A few years ago, when she introduced the BL approach, where she would assign some work to be done outside the classroom. The students would come back to her and she would have to use the class time to explain the technological parts on how to complete their work. She observed that over the years, students have become more receptive to using technology, and the students are more comfortable using technology. Dr. Calcium added that in the BL approach the students need to realise that they have a responsibility too. She said that “the students cannot rely hundred percent on the instructor”. And the students have to take the initiative and ownership of the work assigned online.

Similarly, Dr. Gold described his general experience incorporating BL strategies in general over the years as:

Previously technology was not user friendly, so we stopped working online and only continued using standard classroom teaching. Maybe we didn't have the right tools, its trial an error. These days technology is very advance, all students use smart phones, technology is second nature to them, for me it's a way to reach out to them, it's also a good change, they get to see the same idea in class and on their screen in their own time.

Here Dr. Gold is saying that initially when he started working with tools such as CANVAS, they were foreign for the students. Not every student had a phone, and they were not use to apps and tools that the students are equipped with these days. It was not the right fit for him, although he always enjoyed using technology. The students were not ready, and even the technology was not that user friendly. He has observed a major change over time. Dr. Gold said that he sees the technological tools are now very easy to use, and the students are very much used to using them.

Both instructors suggested that although they faced challenges upon their initial implementation of BL strategies in their classes or institutions, more recent uses of the strategies have been successful. In both responses the success is attributed to the expanded prevalence of technology in society, implying that students are more successful at utilising technological tools in the classroom because of their more frequent use of technology in their everyday lives.

Dr. Sodium also hypothesized which students are likely to benefit from BL strategies in the classroom:

My observation is that in general the students who are willing to do some work were appreciative; others, who do not want to work anyway, did not appreciate the innovations.

Here Dr. Sodium is implying that the students who are serious in learning appreciate the extra assistance technology provides. Dr. Sodium is implying that certain students' behavior is the same with or without technology. The students who do not want to do the work in general do not appreciate the extra teaching tools and will not be appreciative in all cases. Dr. Sodium also said that the teaching tools are there to assist the students. And success solely depends on the individual's will and eagerness to learn.

***T5: Perceptions of instructors not willing to use BL***

This theme looks at the perceptions of instructors who do not wish to use the BL approach in their classroom. In addition to the above examples of instructors who support the use of BL in their classrooms, there were also two instructors who were frustrated or uninterested in using BL in their courses. For example, Dr. Iron summarised her opinion on BL thus:

I personally think that using technology is not helpful. How would I know where the students stand? It's different when you are talking to them and making eye contact. The main idea is to teach them a certain topic, so why use technology that will distract them, when I know what I want to teach, and I can teach them that in the time allocated?

Dr. Iron's perception of BL is based on her past experiences with technology. Dr. Iron mentioned that she had provided laptops to students in her previous institution, and noticed students browsing other sites and not utilising the resources

appropriately. Iron is confident in her ability to sufficiently impart the necessary knowledge to her students without the use of technology and is hesitant to use technology due to the distracting nature of many technological devices.

Dr. Tin expressed similar sentiments, that BL is unnecessary in the effective instruction of students, however she framed her opinion in a slightly different manner:

BL does not impact my teaching as I do not see any benefit in implementing it; when teaching students, I do not see any problems. I actually have great feedback from students who enjoy, benefit and learn from my way of teaching.

Just as Iron expressed the belief that her current traditional, non-technological teaching methods are sufficient, Tin stated that her current methods are successful as well. Tin implies that she has no desire to fix what is not presently broken, and therefore is hesitant to introduce new technology into her courses and said that “Implementing technology might be more work for the students and for me and we will not be benefiting from it.”

Dr. Magnesium considers the option of introducing BL strategies into his course from yet another angle. He stated that he was willing to consider beginning to incorporate BL strategies in the classroom, however remained hesitant about the actual benefits which would result compared with the time invested instituting such new tools:

When I think of implementing more technological tools in my class, I have thought about it, but I am not sure of the value of adding more tools, or how much time it will take in implementing, I am not too sure.



Unlike the previous two examples of responses which did not want to consider incorporating BL strategies and altering the established success they have found in their courses; Dr. Magnesium expressed a willingness to research and consider incorporating BL strategies. Ultimately, Dr. Magnesium remained doubtful of the benefit considering the costs associated with the incorporation of these new strategies.

#### **4.3 Themes Resulting from Student Focus Group Discussion Responses**

The following sections will address those themes which emerged from the transcripts and notes associated with the student focus group discussion of the entry level students at the Medical School. Data was collected from 5 students, Emily, Karen, Harold, Sharon and Yuki in one FGD. All 5 students were at the entry-level year at MS, came from similar ethnic backgrounds, that is they were all middle eastern students. All 5 students before joining the MS had gone to local high school based in the same city and country as the MS. Out of the 5 students 4 were female, and there was only 1 male. As discussed in the context of the study (chapter 1), the MS receives more female applicants as compared to male applicants. Possible reason for higher female population is also discussed in chapter 1. The themes were: (S1) an easier learning experience, (S2) greater convenience, (S3) improved communication, (S4) balancing e-learning and face-to-face learning, (S5) challenges associated with BL, and (S6) increased time/effort associated with BL.

##### ***S1: An easier learning experience***

Students feel that blended learning strategies make their educational experience easier. Focus group participants expressed significant enthusiasm for the use of technological tools in the classroom. Positive vocabulary was used throughout the discussion, with words such as "helpful," "happy," and "excited" used in conjunction with description of their experiences with BL. In particular, sentiments

were repeatedly expressed concerning BL improving the ease of learning and increasing their engagement with coursework. For example, as Harold expressed:

Using technology in class and outside class for a certain subject makes things easy, it reinforces the whole idea, sometimes we do not get a certain concept, but we can always go back and refer to it in the online material and improve our understanding. Things are made quick and easy, communication is very fast, receiving information via email helps us.

Harold is expressing that he gets a better understanding of the topic by further looking it up and reading the posted material online. He does not always understand everything when taught in class. The availability of material online gives him a chance to understand it, in his own time. Students were also happy about communication and how response time has reduced due to the use of CANVAS. In his discussion of the ways that BL has impacted his educational experience, this student twice refers to BL as having made his experience easier. Other responses referenced the ease associated with BL in the classroom, as mentioned by Yuki:

Easy to use, it is very easy to use, anyone can use it, the instructions are clear to follow, the activities are very clear and improve our understanding. I find it very helpful to have technological tools to help me be more informed and it makes my life much easier.

Here both Harold and Yuki show satisfaction with the use of various technologies being offered by the instructors. During the FGD, Harold and Yuki mentioned, CANVAS, Case It, VLS, videos, reading materials online, quizlets, and they mention in their statements above that they are easy to use. The students were at ease and said that the instructions were easy to follow.

Students above also express the benefits of being able to see material ahead of time. They mentioned that instructors post new topics online, this gives us a chance to review it ahead of time. Reading new material gives us the basic introduction and then listening it from the instructor further reinforces the topic.

***S2: Greater convenience***

Students feel that BL makes coursework more convenient. Similar to the sentiment that BL has made learning easier, multiple student responses highlighted convenience as a benefit of utilising BL strategies in the classroom. For example, Sharon stated:

I like to plan ahead, and with the information to be taught in the next class available online, it makes it very convenient for me to plan ahead and read through ahead of time.

Harold expressed similar sentiments:

Having lectures posted online is very helpful, we can watch and take notes at any time, missing a lecture does not mean that we have missed out on the material, it can be viewed at any time at our own convenience.

Students above are pointing towards planning ahead of time. Students said that once they know what is expected from them over the week, they feel more informed and can plan outside the class hours accordingly. This gave them a sense of ownership and responsibility. Once they review material and topics to be taught for the week. They can set their schedule and divide their workload conveniently.

Students preferred to have recorded lectures available online for them to review at a later stage. Students also expressed a sense of relief, that if due to any reason they miss a lecture, they felt at ease that the content is available online for them to view later on.

In addition to responses which explicitly highlighted convenience as a key benefit, some other responses also highlighted the flexibility associated with utilising technological tools in the course. As Harold expressed:

Can work in our own time, flexible, flexibility is very helpful, sometimes we are occupied with working on urgent assignments for another subject, for the teachers who post material online, we can be assured that we can go back in our own time and cover the material missed.

Students at the medical school have a heavy workload. And time management is crucial to survive. Students expressed that missing a lecture is not ideal, but they have to miss lectures sometimes. When they do miss lectures, the availability of recorded lectures greatly assists them in catching up with work.

Yuki expressed particular excitement about the flexibility associated with BL strategies:

I get excited to work on online homework, and I enjoy watching YouTube videos or learning through a video, as it allows me to watch it anytime I want. Sometimes when I sleep late, I can do my work online. I find it amazing to use technology for learning. It just gets me going, working on a computer all by myself really helps me focus and accomplish my work.

This response highlighted the benefit of being able to work at their own pace and schedule as being a motivating factor in their studies, as well as an overall

benefit. This demonstrates that some students find themselves more engaged in their learning through BL, corresponding to the instructors' statements that the BL approach improves student engagement.

***S3: Improved communication***

Students feel that BL strategies improve communication. Another variable which was discussed throughout the focus group was the role that technological tools have played in improving student and instructor communication regarding coursework. For example, Sharon stated,

Communication is very fast... receive instant updates and responses, sometimes the teachers respond immediately to query, and we can move on with our work, rather than waiting until the next day to go and ask the question face to face in their office. Such as feedback on work, if we have questions, we can post them online and receive quick responses.

In this response, Sharon clearly stated the ways in which technological tools facilitated communication, providing examples of such situations where this was an asset to the student. Another statement related to communication was by Yuki:

The best part for me is the fast communication, it really helps to get immediate feedback or response to a concern, and I feel I am always connected.

Students said that when they had a query they could write to the instructors and would receive a response immediately. One of the students gave the example of CANVAS, where it keeps a record of the postings. The students can also view group responses. While the group is studying a certain topic, they benefit from each other's responses in the group. Students

reported a reduction in the anxiety level while using technological tools. They said that, in the past when they had to wait to go to the instructor's office and wait a whole day to get their query answered, it created anxiety. The ease of communication has given them a sense of relief.

Better communication and quick responses available online appear to promote good study practice among students and to motivate them to work harder towards achieving their goals. Availability of material and information when needed assists the students in moving ahead rather than wasting time.

#### ***S4: Balancing e-learning and f2f learning***

Students feel that the use of technological tools needs to be balanced with non-technological teaching strategies. Several students expressed the feeling that technological tools are most useful when properly balanced with traditional, non-technologically based teaching methods. For example, Karen summed up this perception as, "For me it's like an art, where the teacher puts the right amount of energy in the right place at the right time". Karen suggested that instructors cannot rely wholly on the technology but need to utilise the tools strategically in order to benefit their students as much as possible. As Emily provided an example of this experience in their course:

When the teachers just put material out there, it is not very helpful, for example using demonstrations where they are not explained properly. Using software and online material is only helpful when followed with an explanation.

This response suggests that the technology is not necessarily the problem, rather it is the improper usage of the technology by the instructors, which results in challenges associated with BL. With the proper support and instruction technology is

welcomed by students, however without such support it can be misused and misunderstood, complicating the work of students. Harold provided a comprehensive summary of this opinion that BL requires balance:

If too much material is given and there is no lecturing, we will get confused and will not be able to follow the right track.

Here the student is not referring to a specific technology, but reaffirming the idea from his own perspective, that the way he is being taught at the moment is the right balance. He is implying that the VLS and virtual labs that demonstrate material online truly assist him in grasping the concept. The student also says that if too much technology is used without direction, they can lose track. The students preferred an organised approach to when BL is applied. Students said that the instructors need to keep an eye on student progress and decide on the right balance.

#### ***S5: Challenges associated with BL***

Students feel that technological tools can cause frustration and confusion. While much of the student focus group discussion considered the benefits of utilising BL strategies in their coursework, various challenges associated with using technological tools were also highlighted. One such challenge included the confusion or frustration which may result from using technology. For example, Emily stated:

There are times when the teacher is trying to upload something in class, and we can see the teacher is frustrated, and we also feel frustrated.

Students reported instances where the instructor was not able to make VLS work in class, or where they could not upload material online. They also said that when technology fails, instructors show frustration in class, leading to unwanted pressure on the students. Additional examples of such sentiments included, "I get

confused sometimes, it can get a bit too much," (Karen, personal communication) and "Following notes online is very confusing and we have to rush, in case the teacher rubs it off before we have taken the notes" (Emily, personal communication). Here Emily is pointing towards the instructor removing the online posted material. She felt pressured to capture the information before the instructor would remove it from CANVAS. Karen is also saying that she gets confused if too much information is given at the same time. She is referring to the repetition of information. Each of these responses discussed frustrations which may arise as a result of technology, with an implication that such frustration or confusion may have been avoided with traditional, non-technologically based teaching methods.

***S6: Increased time/effort associated with BL***

Students feel that BL requires additional time or effort. Multiple responses expressed the sentiment that as a result of utilising technological tools, students were now having to spend additional time on their coursework, for various reasons. One BL situation highlighted as taking additional time to complete coursework was described by Karen:

When I am working by myself on a task assigned online, I cannot ask the teacher, because the teacher is not around, so for me this is something I do not like about working online outside class.

This comment can be applied to normal homework as well. But it shows discomfort and an unwillingness of the student towards working online. Karen argued that when online, they do not have direct accessibility to the instructor, as they would in a physical classroom. Implying, that instructors physical absence creates a hinderance in moving forward with their coursework.



Another example of displeasure associated with the time required to complete BL coursework was related to the repetition involved with blending technological and non-technological coursework. For example, Emily stated:

One way of getting information is enough. For me, it's more work; I like to do everything a teacher gives me, I give importance to assignments, quizzes, lectures, reading assignments.

Here Emily is referring to the non-essential parts of the course. For example, the extra reading materials or practice quizzes posted online. Emily felt pressured to complete all the tasks posted online. In this situation, it is not necessarily that the use of technological tools is posing a challenge to the student, but the way that the instructor is structuring their course and distributing their coursework is resulting in frustration for the student.

#### **4.4 Summary**

In this chapter, the researcher has provided a clear and comprehensive description of the data and the themes extracted from participant responses. In order to gain insight into the use of BL among MS instructors, as well as their perceptions and experiences, the responses of both MS instructors and students have been strategically collected and analysed. Prior to beginning a discussion of the results of thematic analysis, a description of each interview participant was provided in the form of a brief narrative detailing the instructor's experiences with and use of BL in their classrooms. Such narratives serve as miniature case studies, representing the unique ways in which different individuals experience and perceive the role and impact of technology in the classroom. These narratives also served to provide context to the themes descriptions that followed in the subsequent sections.

Those themes which emerged from within the interview transcripts and class observations reflect the perceptions and experiences of MS instructors. Their responses indicated that instructors generally view BL strategies favorably. Benefits associated with utilising BL included improved instructor efficiency, increased student engagement and improved accessibility to coursework for students. Several instructors considered student performance to have been enhanced with the use of technological tools in the classroom, however other instructors expressed the sentiment that they do not consider BL a beneficial tool in their courses.

Following the description of instructor-related themes and representative examples of responses, the themes which emerged from within the student focus group discussion were detailed next. These included student perceptions of improved communication, improved convenience and increased ease associated with completing coursework. However, various challenges associated with using technological tools in the classroom were also discussed, and a theme emphasising balance in using technology together with face-to-face teaching was also presented. Student responses assisted in confirming instructors perceptions and views of the BL approach.

#### ***4.4.1 Summary of Response to Research Questions***

This section will give brief responses to the research questions. Detailed responses to each research question are discussed in the next chapter.

1. What are the factors that influence instructors' perception and motivation around BL approach?

Using the themes above I was able to determine that instructors had a positive perception of BL strategies in the classroom so long as the learning outcomes were

successful. The study showed that BL tools improved instructors' time management and efficiency both in preparing and teaching students.

The study also showed that personal interest in BL, personal benefits from BL, and instructors' perception that BL promotes student engagement, motivates instructors. Personal benefits reported were BL is easy to use, and BL saves time. Personal interest reported were, an interest in researching BL techniques, BL is fun to teach, and BL is energising.

Instructors can have perceptions of BL based on their past experiences. And feel demotivated to apply BL when their needs are not met. When instructors perceive BL not meeting their needs, they will not see PU in applying the BL approach. Therefore, to motivate instructors we need to go a step back and find out the needs of the instructors.

This agrees with literature related to BL approaches. BL is not an approach that can be applied generally. Rather it needs to be shaped to meet individual instructor needs. One solution that works for an instructor does not fit well with the other. Institutions struggle with this problem when applying the BL approach.

2. How do instructor's perceptions of BL influence the implementation of BL approach in the classroom?

Two of the eight instructors perceived BL to be not useful. When instructors perceive BL to be not useful, they do not implement it in their class. The first instructor perceived BL to be distracting for students, based on her past experiences with technology. The second instructor reported to lack technical knowledge. In conclusion, I found out that past bad experiences with BL and lack of technical knowledge can create negative perceptions, resulting in not implementing BL.

Instructors who implemented BL found it to be motivating and energising. I found out that instructors cannot be persuaded to perceive BL to be useful for them. Instructors' perception of BL depends on self realisation, that BL is the right approach for them. In this study two instructors showed signs of self realisation that BL is the right approach for them. The two reasons for perceiving BL to be the right approach for the instructors, were, training and introduction to BL, and perceiving BL to be useful for their course.

I found out that support from the institution is a motivating factor for instructors. It creates a positive perception of BL and encourages the instructors to implement BL. Although support was available, but BL was not implemented institution wide. Rather it was initiated by instructors individually.

### 3. How do students' perspectives influence instructors' perception of BL?

This question was answered based on the instructors responses. As, this study aims to find out instructors perceptions of BL. I also wanted to see how student perspective effects instructors perceptions of BL. FGD with the students proved to be fruitful, confirming instructors perceptions of BL. And also giving useful information about the relationship between instructor and student expectations in a BL environment. I found out that an instructor's perception of BL is indeed effected by students. I found out that instructors perceptions of student success plays a motivating role for the instructors. And this is perceived by the instructors as, technology is useful and easy to use. I found out that in a BL environment, instructors perceive that students have a responsibility, too. They expect students to take some responsibility towards the assigned work. Students' irresponsible behavior in a BL environment can have a negative effect on an instructors' perception of BL. This negative perception of BL among instructors, instilled by student behavior could convince the instructors not

to use BL in the future. The discussion later from the FGD showed that students also had expectations from the instructors. Therefore, it was concluded that both instructors and students have expectations from each other in a BL environment. When faced with issues both the students and instructors complained about the technology. This study suggests that both instructors and students should set expectations when planning and designing the implementation of BL approach.

The study also found that according to Porter et al. (2014) my institution MS, never had a planning and design stage. Therefore, it is highly recommended for institutions to follow a strategy when implementing the BL approach.

While this chapter has provided detail on the themes arising from this study, including descriptions of each theme and representative examples from the responses, further insight will be provided in the chapter to follow. These results will be discussed in greater depth in the next chapter, as the researcher strives to interpret these findings regarding blended learning's role in education, with the aim of improving the educational experience for both students and instructors.

## Chapter 5 - Discussion

Blended learning has been gaining interest as a potential means for education innovation. Despite its growing popularity, there is still a dearth of research on BL and its impact on education in the Middle Eastern countries (Sajid et al., 2016). Currently, BL is applied to many higher learning institutions in the Middle East in various forms (Algahtani et al, 2020; Tamim, 2018; Sajid et al., 2016; Çardak & Selvi, 2016). However, it has not been accepted or acknowledged. It is probable that in the next few years, BL will become the normal way of teaching in the Middle East, as technology is increasingly being incorporated into learning (Tamim, 2018). More research needs to be carried out in the GCC countries on the whole process of BL implementation, BL perceptions, specially instructors perceptions of BL and outcomes of using technology in a classroom (Bellibas & Gumus, 2016; Sajid et al., 2016; Çardak & Selvi, 2016).

The purpose of this qualitative study was to look into the point of view of individual instructors from the Medical School (MS) in the Middle East, and to explore instructors perceptions and the effect of instructors perceptions on BL implementation. The study looks at the use of technology in an entry level year at MS, teaching an American curriculum to Middle Eastern students. Data was analysed using NVivo software to facilitate multiple stages of careful coding and organisation of the data. The study was guided by the following research questions:

1. What are the factors that influence instructors' perception and motivation around BL approach?
2. How do instructor's perceptions of BL influence the implementation of BL approach in the classroom?
3. How do students' perspectives influence instructors' perception of BL?

Results revealed emerging themes that focus on the instructors perceptions of the impact, benefits, and disadvantages of using BL in the classroom. The themes that emerged from the instructors data were: (T1) BL enhances course instruction and instructor efficiency, (T2) Impact on student, (T3) Institutional support for BL, (T4) Success of BL dependent on students, (T5) Perceptions of instructors not willing to use BL.

The themes that emerged from the students' focus group data were: (S1) an easier learning experience, (S2) greater convenience, (S3) improved communication, (S4) balancing e-learning and f2f learning, (S5) challenges associated with BL, and (S6) increased time/effort associated with BL. Themes mentioned above are used in the discussions below referring to the respective themes in chapter 4.

The findings offered insights on the perceptions of instructors and the effect of student's perspective on instructors perceptions of BL. Previous studies have focused on instructors' point of view, which could have limited what was learned about the advantages and disadvantages of technologies in educational contexts. Thus, the addition of the students' perspectives allowed for deeper insights into the actual impact of innovation, specially since students are the primary users of these tools. Further research is required to find explicit relationships among different variables that influence the use of BL, as well as the effectiveness of this approach both on the instructors experiences in teaching and students cognitive development and learning. This study mainly focuses on instructors perceptions, and students views and responses confirm instructors use and perceptions of BL in the classroom.

This chapter, addresses the three research questions outlined above, based on, the themes discussed in chapter 4, the existing literature on BL and how university instructors perceive BL strategies. The contents of the chapter are centered on the

themes from the participants' accounts. Following this, interpretation of the results in light of TAM are discussed considering the findings. The limitations of the study, implications and recommendations for future research are also enumerated. Finally, the chapter is concluded with a summary of the discussion, and conclusion.

### **5.1 Interpretation of the Results**

This section contains the discussion on the emerging themes from the perspectives of instructors regarding BL as a teaching approach in the classroom. Both groups of instructors and students perceived that introducing BL in the classroom contributed mostly positive but also some negative experiences. The instructors generally believed that the introduction of BL was a work in progress aided by the support of their institution, as well as by the way students utilised technology in the classroom. Themes from the student FGD are used to further confirm instructor's claims and perceptions of BL. As a result, the instructors generally perceived that technology was necessary, and contributed to teacher efficiency, student engagement, and student performance. Instructors perceived BL to increase students' accessibility to course materials, this perception of instructors was confirmed by students as discussed above in Theme S2. While some instructors expressed the view that BL was more distracting than beneficial for the students, the majority of the instructors reiterated that applying BL in the classroom contributes to enhanced learning.

The students also generally perceived that BL contributed to making learning easier and more convenient than traditional learning. However, the students generally preferred a balance between traditional and technological tools. Some students perceived that BL can be a frustrating and confusing experience, which required additional time and effort to implement in the classroom.



Robertson (2003) found that there is a gap between the excitement of implementing and using technology, and how people experience technology. The application of TAM to this study aims to contribute to how people experience technology. Instructors can be excited to use BL. Research shows instructors' perceptions affect the implementation of BL (Ma'arop & Embi, 2016). As discussed with the instructors, initially when they were starting to implement the BL approach, they had a lot of energy, as it was motivating for them to introduce a new idea, a new way of teaching. However, not all instructors thought that the tools met their expectations when they were actually applying the techniques in the classroom.

This is not to claim that all BL does not work in all cases, but certainly there is a gap between implementing, using, and experiencing technology (Robertson, 2003). This study reveals further gaps, and reports that there is a gap between, perception of BL, implementing it in class, using, and experiencing technology. Additionally, Price and Oliver (2007) indicate that implementing technology in education is complicated, as there is no concrete answer to how the use of technology affects the classroom and how it should be adapted in a given educational environment. Price and Oliver (2007) also report that it is not known how blended learning strategies are perceived as sufficient and effective means of delivering the necessary study materials. And if BL is an equal or better alternative to the conventional approach (Price & Oliver, 2007).

For this study I found that the goals of instructors in utilising BL included improving teacher efficiency, student performance, and student engagement. The instructors also reiterated that the success of BL in the classroom relied on the instructors, the students, and the institution's leaders, and that learning took place in the institution. This is also confirmed by the Education Development Trust established in the UK 40 years ago as a center for British teaching providing

education services in the UK and internationally (Day & Sammons, 2016). The Education Development Trust mentions that policy makers and institutional leadership plays a major role in implementing and promoting enhanced teaching practices (Day & Sammons, 2016). In relation to institutional support to teaching and innovation, instructors expressed that they had the freedom of choice and were not required to choose a certain method of teaching. In case where they needed either technical or logistical support, they were given full support from the institution. Some instructors expressed that applying the BL approach would have not been possible without the institution's support and training. Generally, the instructors felt supported and at ease with the institution. Instructors stating that support is available, is valuable information, indicating that institutional support is important for their success in teaching.

The discussion on the importance of technology integrated in the educational system, requires development of instructional approaches grounded in practice (Takala, et al., 2016). Practical applications of innovative technology-infused teaching are essential in promoting effective teaching practices (Takala et al., 2016). In light of this, it is important to look into how technological tools are implemented in the context of learning. Technology must be carefully used in the classroom and in other learning arenas (Frilot & King, 2017). In this section, the emerging themes are discussed based on the related studies. In the discussion below, each heading addresses the three research questions of this study. This study reveals how perceptions alter dependent on, instructors own experiences, instructors background, instructors training, instructors personal interest, student's perspective, and institutional support. The study also reveals the effect of instructors perceptions on implementation of BL in the classroom.

*Question 1: What are the factors that influence instructors' perception and motivation around BL approach?*

Instructors perception of BL is an everchanging process (Mozeliu & Rydell, 2017). This question addresses the development process of perception building. Influence of instructors perceptions on implementation of BL in the classroom is discussed in Question 2. Instructors perceptions of BL's dependency on response and student perspective is addressed in Question 3. If instructors perceptions could be visualized on a scale. It is interesting to see a full spectrum of instructors perceptions in this study. Dr. Gold being at one end of the spectrum, an advocate of BL and he also carries out research on the application of BL. And Dr. Tin being the complete opposite, perceiving BL to be a waste of time, and not useful. In the middle you have Dr. Resium perceiving BL to be a need that benefits the instructors. Dr. Sodium and Dr. Calcium perceive BL to be self-motivating and self-energising. Dr. Radium perceives BL to increase the depth and reach of his teaching. Dr. Magnesium perceives BL to be self-energising, but not to add any value to the classroom. Dr. Iron perceives BL to be distracting, and not useful.

Theme T5: Perception of instructors not willing to use BL shows that Dr. Iron and Dr. Tin are not willing to apply the BL approach. As discussed in Theme T5 Dr. Iron perceives BL to be distracting based on her previous experiences with technology. Based on her bad experiences Dr. Iron banned the use of technology in her classroom. She even penalizes students for using their phones in the classroom. Dr. Iron claims texting during class to be a bad behavior, which is consistent with findings of Barks et al. (2011). Barks et al. (2011) reported texting during class to be misconduct and bad behavior. MS institutional policy is to follow instructor's directive at all times in class and good conduct at all times. When it comes to making

decisions about using technology or not in class, the instructors make the final decisions. Rosen et al. (2011) found out from surveying students that phones are a cause of distraction in class. Rosen et al. (2011) found that students who texted during class took low quality notes and scored lower on exams. Dr. Iron reported a similar problem, she said that students get distracted with technology, while they should be listening to the important material that I am delivering in class. Bok Center (2020) at Harvard University says that when an instructor is lecturing and sees the students staring at their laptops, the instructor gets disheartened. This creates a sense of disliking towards technology and can result in banning of technology from the classroom. Dr. Iron's reaction was consistent with what literature reports, she blamed the technology for distracting students, and she banned the use of technology in the classroom. All Dr. Iron's claims are consistent with literature. But her claims are applicable only in the context of her own class. If we observe at an institutional level outside her class, and at the same group of students. The other instructors teaching the same group of students using technology reported the contrary. Theme T5, contradicts theme T1A: Enhancing the classroom experience. In theme T1A instructors explicitly mention that they find BL to enhance the whole teaching experience. All the other six instructors who apply BL at MS did not report technology to be distracting.

Based on Dr. Iron's statements, it can be argued that Dr. Iron has preconceived perceptions of technology, based on her past experiences. And maybe she needs to revisit the different options available to tackle the use of technology in her classroom. Bok Center (2020) suggests that banning technology is not the solution, but rather the problem, technology distraction should be fought back with technology. They suggest posting reading materials online, adding online quizzing and polls to keep the students engaged with technology meaningfully.

Based on this discussion and consistent with literature I found out that instructors could have preconceived perceptions of the BL approach (Mozelius & Rydell, 2017; Smyth et al., 2012; Brent et al, 2015). It is also advisable for instructors to discuss their issues related to technology with their colleagues (Mozelius & Rydell, 2017). As it was proved that the other instructors at MS were using technology successfully. Dr. Iron could get beneficial feedback from other instructors about the use of technology. They could have had a bad experience in the past, however with the advancement of technology many things have changed (Lämsä et al., 2018). There are many feasible options available nowadays.

In conclusion instructors can have preconceived perceptions of BL based on their past experiences. Blaming or banning technology is not the solution. But the problem should be tackled with technology. With the advancement of technological tools, other options should be explored (Stupnisky et al., 2018; Palmer, 2015; Lämsä et al., 2018). These points can be recommended to the institution, to be addressed as one of the trainings and educational support solutions. Above a reason for instructors being demotivated to use BL was discussed. To get a better understanding it is also important to see what motivates instructors to use the BL approach. And some of these motivational points can be recommended to assist in changing instructors perceptions.

Dr. Sodium, Dr. Calcium, and Dr. Magnesium perceive BL to be motivating and energising for themselves at a personal level (theme T1B: Motivating Instructors). The perception of teaching to be motivating, results in better work being done by the instructors. Motivating people at a personal level is not an easy task (Valcour, 2017). Dr. Gold is a researcher of BL and perceived BL to be interesting because of his own personal interest. Instructors' educational interest in the teaching

method indicates mastery in skills and a positive perception towards teaching (Schiefele & Schaffner, 2015). Instructor motivation results in better work, and effort from the instructor (Stupnisky et al., 2018; Stupnisky et al., 2017). Not much work has been done on instructor motivation in general. Knowing what motivates instructors and how motivation effects instructor teaching practices, will benefit the higher education administration (Stupnisky et al., 2018). As there is a gap in research in relation to instructor motivation related to BL. Both Dr. Sodium and Dr. Calcium felt motivated and energised when they implement BL.

It is worth looking a bit deeper into, why Dr. Sodium and Dr. Calcium perceived BL to be motivating at a personal level. They found BL to be motivating because it benefitted them in their teaching. In view of external variables defined by TAM and TAM extensions in literature, none of them mention personal motivation as an external variable (Jimenez et al., 2020). As discussed in chapter 2 literature review, most of the external variables effecting user perceptions are related to self-efficacy, knowledge of technology usage, and the way technology has been designed (Hong et al., 2002). According to Dr. Sodium and Dr. Calcium they benefitted from BL by achieving more in less time, and by being able to carry out virtual experiments with ease. They mentioned that not only did they benefit from BL in class, but they also benefitted at a personal level. They reported BL to be fun, satisfying, and energising. Dr. Sodium got motivated to use the BL approach from an educational support training that he attended. And Dr. Calcium's motivation comes from her nature to use innovative technologies and she finds them to be very helpful. Instructors can choose to attend training sessions of their choice, but it is not mandatory by the institution. As mentioned above Dr. Sodium and Dr. Calcium directly benefitted from using the BL approach. When instructors' basic needs and requirements for their course are met,

they feel more motivated to adapt new methods and in general motivated to teach (Stupnisky et al., 2018). On the contrary, as mentioned in theme T5: Perception of instructors not willing to use BL, Dr. Tin and Dr. Iron, perceived that BL could not meet their needs as instructors. An external variable in TAM is content quality (CQ), defined as the information meeting user needs (Jimenez et al., 2020). It can be concluded that when instructors perceive CQ, they will use BL. And if the instructors do not see CQ, they will not use BL. This finding agrees with TAM external variable CQ, that users will not use technology when they see that their needs are not met. As discussed above Dr. Iron perceived technology to be distracting for the students and hence concluded that it does not serve my teaching goals. Because she perceived BL not to meet her needs.

I found out that a personal interest in the BL approach, and to see a personal benefit motivates instructors (theme T1B). Personal benefits reported were PE of use and PU of BL. PU of BL reported was that it saves time (theme T1A). Personal interest reported were, an interest in researching BL techniques, BL is fun to teach, and BL is energising (theme T1B). BL is fun to teach agrees with TAM's external variable perceived enjoyment (PE) (Jimenez et al., 2020). These findings agree with literature that instructors are motivated to use and adapt BL when they see direct benefits that meet their needs (Stupnisky et al, 2018). And it was discovered that instructors feel demotivated to adapt BL when their needs are not met. When instructors perceive BL not meeting their needs, they will not see any benefit in applying the BL approach. This agrees with literature related to BL approaches (Barks et al., 2011; Bok Center, 2020; Stupnisky et al., 2018). This finding also, agrees with TAM when users do not PU of technology, they will not use technology. BL is not an approach that can be applied generally. Rather it needs to be tailor made for each

individual instructor. One solution that works for an instructor does not fit well with the other. Institutions struggle with this problem when applying the BL approach.

Therefore, to motivate instructors we need to go a step back and find out the needs of the instructors. Once the needs have been established, instructors could be recommended technologies suitable for their individual needs.

A starting point in the application of BL applications institution wide could be to get the requirements from the instructors. There are some common grounds in the application of BL, but there are also some individual instructor needs, based on the specific courses (Mozelius & Rydell, 2017). If the details of instructors issues can be relayed and looked into, they could be given expert advice to use other forms of technological tools (Bok Center, 2020). At MS institutional support is available for the ones' who seek support (theme T3: Institutional Support). The institution does not make it mandatory for instructors to be trained. For example, in Dr. Iron's case it could be suggested for her to use live polling softwares, where students have to respond live in class, increasing student engagement, and leaving less room for distraction. As reported by instructors in this study, it is evident from our discussion below that advancement of technology has greatly contributed to the development of new technological tools. And the availability of handheld devices has empowered students to be more trained in using technology (Groccia, 2018; Benham & Carvalho, 2016).

In theme *T4: Success of BL dependent on students*, instructors reported that advancement of technology over the past years has paved the way for them to implement BL. Two of the instructors in theme T4 mentioned the same observation, that in the past when they tried applying BL the students were not receptive to using technology, while the advancement of technology and the availability of handheld



devices has better equipped students to adopt BL (Groccia, 2018). It is high time for instructors and educators to be made aware by institutions of the technological revolutions taking place in higher education. Perceptions build upon past experiences could affect an instructors' teaching methods, not keeping up with the current trends (Mozelius & Rydell, 2017; Smyth et al., 2012; Brent et al, 2015).

In conclusion based on the findings, it was also revealed that instructors are leaning towards utilising BL strategies in the classroom so long as the learning outcomes are successful. Instructors are more accepting of innovative technologies if these tools can improve the interactive skills of students, facilitate creative learning, and motivate students to learn (Tian et al., 2017). Researchers have shown that incorporating BL in classroom teaching strategies has been significantly helpful in improving the performance or learning outcomes of students. Results from my study at MS showed that student learning outcomes were improved according to the instructors. BL tools were also reported to improve the instructors time management and efficiency both in preparing instructional materials and teaching the students.

BL technologies can have a positive effect on development and learning of students and can significantly contribute to enhanced learning outcomes. Understanding the instructors' point of view on the assimilation of BL strategies in the classroom provides insights on numerous limitations of infrastructure and logistical challenges, as well as the perceived positive outcomes of this approach (Mozelius & Rydell, 2017).

I found out that instructors can have preconceived perceptions of BL based on their past experiences. Based on findings it is recommended that with the advancement of technological tools, other options should be explored. It was also found that when instructors basic needs and requirements are not met from BL, they

feel demotivated to use the BL approach. It was concluded that BL is not a general approach, but it should be tailor made to meet the needs of each individual instructor. Institutions need to acknowledge needs of instructors and based on that develop BL strategies.

In the next subsection, the emerging themes addressing the second research question on the influence of instructors perceptions on implementation of BL are discussed.

***Question 2: How do instructor's perceptions of BL influence the implementation of BL approach in the classroom?***

Implementation of BL is a complex process and involves many different variables (Boelens et al., 2017; The Oxford Group, 2013). The Oxford Group (2013) reported the key challenges of implementing BL, to be the time required for setting up, dealing with complex technology, lack of internal expertise, instructors, technical support and student engagement. These challenges require further research in the field of BL implementation. As outlined by The Oxford Group (2013) this question attempts to address one of the key challenges of implementing the BL approach, and that is the instructors. This question addresses how an instructor's perception of BL influences implementation of BL in their respective classrooms. Instructors play a crucial role in the implementation of BL in the classroom (Mozelius & Rydell, 2017). When it comes to teaching methods, instructors are the implementers and the end users (Porter et al., 2014). Most of the research around BL does not address the instructors, their perceptions and the emotions involved (Mozelius & Rydell, 2017). In relation to instructor efficiency, findings also reflected the notion that instructors' readiness, their beliefs and computer availability can impact technology integration in the classroom (The Oxford Group, 2013). If the instructor is not well versed in the use

of technology, they will perceive BL to be complex and will not implement BL (The Oxford Group, 2013). Theme T5: Perception of instructors not willing to use BL, shows that, instructor belief plays a role in the integration of technology, as reaffirmed by Inan and Lowther (2010). If the instructor perceives technology to be not useful, they will not implement it in the classroom. According to TAM, when instructors do not perceive technology to be useful, they will not implement it. This was the case with the two instructors, Dr. Iron and Dr. Tin. As Dr. Tin said, she perceived technology to be not beneficial, she did not PU of technology. Dr. Iron considered technology to be distracting, and Dr. Tin considered technology to be a waste of time. Both the instructors did not acknowledge PU of technology. Instructors stating BL to be distracting or not useful, can be interpreted as maybe to them the disadvantages outweighed the perceived benefits. Some of the interpretations for Dr. Tin are discussed below. Dr. Iron's claims have already been discussed in Question 1, above. Neither implemented technology in their classroom.

Dr. Tin mentioned that she was not well versed with the use of technology. While talking about using technology she also showed signs of anxiety. This finding agrees with TAM's external variables anxiety (ANX) and lack of experience (EXP) that effects instructor's perception of adopting technology (Jimenez et al., 2020). Lack of knowledge comes under EXP external variable. And research shows that instructors lack of knowledge in technology use effects the delivery of BL and even willingness to adopt BL (Brent et al, 2015). Instructors lack of technical knowledge builds up a negative perception towards technology (Mozelius & Rydell, 2017). Although as evident in theme (T3) Institutional support for BL, institutional support and training is available, Dr. Tin has never taken the initiative to seek support. As mentioned in Dr. Tin's narrative, she even shows signs of discomfort, anxiety and

disliking towards technology. Many instructors experience anxiety of using technology and they are not aware of it (Azarfam & Jabbari, 2012). According to Lam (2000) it is the fear of the unknown among instructors. In view of TAM external variable ANX the instructors are not comfortable using technology, and they fear change in their teaching environment (Jimenez et al., 2020). The instructors prefer to be in their comfort zone. Anxiety and fear of using technology creates a negative feeling and perception towards technology. It can be concluded that when instructors perceive technology to be not useful, they will not implement it. Instructors lack of knowledge in technology, can lead to anxiety and fear of using technology. This can create negative perceptions of using the BL approach. Leading to not implementing BL.

In another theme T1B: Motivating Instructors, revealed that instructors implement BL because they perceive BL to be self-motivating for them. Instructors perceived BL to be easy to use, a fun way of teaching, motivating for themselves, and an energising approach. Instructor's need to be emotionally competent in order to teach and operate in the classroom (Yin & Yang, 2017). Instructors reporting that BL motivates them at a personal level and energises them are signs of emotional stability (Jun-jun, 2016).

On the contrary resistance to change and not willing to implement BL stirs negative emotions (Bahia et al., 2013). If instructors, are not willingly applying a change in their classroom, and they are forced to apply a change to their teaching method, it creates anxiety and exhausts their energy (Yin & Yang, 2017). Schutz et al. (2006) say that emotions arise from within. If the instructor is satisfied within by using BL, this implies that they are personally convinced. That this is a positive

change and the instructors feel motivated internally to apply the BL approach. This creates a positive image and perception of applying the BL approach.

Instructors cannot be convinced to perceive that BL is the right approach for them to use. It is a self-realisation that happens as they develop overtime. This can be demonstrated by Dr. Resium, realising that BL is a requirement for her researching techniques (RT) course. Another example of this is Dr. Sodium, who realised the benefits of BL by attending a training course. Both Dr. Sodium and Dr. Resium, have similar teaching experiences and have attended training courses in using technologies.

It is advisable not to force instructors to implement BL, as this can create further anxiety and demotivation to teaching (Yin & Yang, 2017). I also found out that instructors who are self-motivated are more prone to implementing BL. The perception that BL is the right approach to be implemented, cannot be instilled, but it is a self-realisation by the instructors. This self-realisation in this study was based on training attended by instructors. When Dr. Resium saw BL as a requirement, she realised that BL was required and implemented it.

Not all the eight instructors interviewed can be classified into motivated or demotivated users of BL. According to Kirkwood and Price (2014) delineation of the benefits of innovative technologies necessitates understanding how the technology influences individuals. This may be due to an overwhelmingly large number of instructors employing technology to sustain existing patterns of teaching instead of innovating to develop new patterns (Kirkwood & Price, 2014). Yet only a small fraction of instructors are willing to use technology to accelerate student-centred and project-based learning approaches (Kirkwood & Price, 2014). Dr. Magnesium fits into the definition by Kirkwood and Price. Dr. Magnesium explicitly mentioned that he started using the BL approach in order to be consistent with other instructors in the

institute. In Dr. Magnesium's case he wanted the students to receive information from consistent sources. Although Dr. Magnesium did report BL to benefit his teaching and the overall class dynamics. He observed that students were more engaged, and he could see the students face-to-face more often. As with the use of BL, he did not need to be facing the whiteboard all the time. This shows us that initially instructors might implement BL for trying to fit in. However, once they have starting using BL, it could change their perceptions overtime. In conclusion I can say that it is recommended for instructors to give BL a trial. Trying the approach will give them a better view and perception of what to expect. Responses from the instructors, shows us that the BL approach was adopted by the instructors, and it was not implemented by the institution. Although, once instructors adopted BL, support was provided by the institution.

One of the main themes (*T3*) *Institutional support for BL* connotes the importance of school-wide initiatives in promoting the utilisation of BL strategies in classrooms. BL strategies can be considered as a promising pedagogical tool that is well-received by school management (Porter et al., 2014). An important point for consideration in the implementation of BL is not only the instructors' utilisation and students' reception of technology in education, but also the educational policies that can either promote or hinder innovation in the classroom (Mozelius & Rydell, 2017). When the instructors perceive the institution to be supportive of BL, they feel encouraged to implement BL (Allen et al., 2012; Torrissi-Steele & Drew, 2013; Day & Sammons, 2016; Mozelius & Rydell, 2017). The findings from instructors interviews revealed that the college is very supportive. The instructors felt supported by the institution and did not report any hinderances from the institution. According to Inan and Lowther (2010) support provided by the institution promotes integration of

technology and positive perception of BL. Orr et al. (2009) report that institutional support and recognition of faculty is an important motivating factor in an online learning environment. The findings of this study confirmed Orr et al. (2009) and Inan and Lowther (2010) findings.

Pelgrum (2001) found that implementing technology-based projects in an institution involves the management, the instructors, the students, and the information technology department of the institute. It is important for the various departments to work together because they depend on each other. For example, in the case of MS, the instructors rely on the institution to approve usage of software. All the technological tools, CANVAS, PANOPOTO, VLS, Case It, Respondus, Poll Everywhere, Illiad, ProQuest, and RefWorks, are used after permission has been granted from the institution. Once approval has been granted, then the tools are referred to the ITS department which assists in installing and maintaining the tools. The instructors rely upon the institution's management for approvals, and on the ITS department for installation.

This was evident from the findings of the study, that different departments were supportive of implementing BL at MS (theme T3: Institutional Support). As mentioned by the instructors in T3 that support was readily available by the institution. The interdependent relationship among these players is critical in building an environment and perceptions of instructors that promotes BL strategies (Allen et al., 2012; Torrisi-Steele & Drew, 2013; Day & Sammons, 2016; Mozelius & Rydell, 2017).

However, the themes and discussion above also reveal that BL at MS was not implemented institutionally. A holistic approach to BL implementation involves the

learner, instructor, technology, content, learning support and the institution (Porter et al., 2014). As the main focus of this study is instructors perceptions, I will discuss the implementation process from the instructors perspective. According to TAM external variable facilitating conditions (FC), institution infrastructure plays an important role in forming instructor perceptions (Jimenez et al., 2021). A suggestion is to look at Porter et al. (2014) three stages of implementation as discussed in the literature review. I will discuss each stage and how MS implemented BL. Porter et al. (2014, p.186) identified three stages of BL adoption in an institution:

“Stage1: Awareness/exploration

Stage 2: Adoption/early implementation

Stage 3: Mature implementation/growth”

Looking at the 3 stages that Porter identified. The first stage that he defines is awareness/exploration. Where the institution introduces the idea to the instructors and other involved users. This stage of exploration allows the instructors to study the process, and look at the advantages and disadvantages of applying BL. It also allows instructors to discuss the various approaches among themselves and receive feedback from each other. This stage is time allowed to ponder, plan and think about the application of BL. I think this is an important stage that might have been missed by instructors at MS. This stage could be the building block in the instructors PE and PU of technology. As most of the instructors I interviewed started applying different approaches and technologies to their classroom at different times. The instructors were not given an opportunity to look into the PE and PU of technology. None of the interviewees indicated an institutional wide process of looking at different technologies and discussing it with the instructors the actual end users. While



according to Porter et al. (2014) this is an important process. The problems caused by skipping this process are evident in the findings.

The second stage Porter et al. (2014) defines is adoption/early implementation is where the process is implemented across the institution. Again, statements from the instructors indicate that BL was not implemented institution wide, but rather each individual instructor had their own way of implementing BL in their classrooms. According to TAM's external variable FC, lack of institutional infrastructure, can affect instructors PE of use and PU of technology (Jimenez et al., 2021). An organised approach by the institution could have assisted the instructors in forming better views of BL.

Porter et al. (2014) defines the final stage to be mature implementation/growth. Porter says that at this stage everyone has adapted well to the BL process institution wide, it is part of their routine, and BL becomes an important part of the institution. With stage one and stage two not implemented in the proper manner. There are no signs of stage three where everyone has comfortably adapted well to the BL process at MS. It is recommended for MS and also for other institutions to adopt Porter et al. (2014) three stages of implementation, in order to implement BL in an organised manner. This also confirms with TAM's external variable FC, where an organised approach by the institution promotes PE of use and PU of technology among instructors (Jimenez et al., 2021).

The themes from the instructors' perspectives connote a general positive viewpoint on BL strategies, especially in relation to the students' learning and engagement in the classroom. The BL approach depends on the individual instructor and can alter from instructor to instructor, depending on personal preferences, previous experiences with BL, learners' response to BL, peer support, the class size,

and the technical support available. It is important for senior administrators and educators to be aware of the different requirements. The next question will look into how student's response to BL, effects instructors perceptions of BL.

***Question 3: How do students' perspectives influence instructors' perception of BL?***

The discussion below attempts to address a difficult topic. Not much literature is available related to students' influence on instructor perception in relation to BL approaches (Al-Busaidi & Al-Shihi, 2012; Brown, 2012; Palmer, 2015). According to TAM and TAM's extensions, student behavior is not in the list of external variables as well. The discussion below shows that student perspective, and response to BL does have an effect on instructors' motivation and perception of BL. As evident in literature this study reveals that when instructors implement BL, the instructors also have certain expectations from the students (Brent et al, 2015; Smyth et al., 2012; Poon, 2013). It is important to see students' perspective because students play an important role in forming instructors perceptions (Craven, 2020). The first discussion below discusses instructors expectations. The discussion later attempts to discuss the influence of student engagement and performance in a BL environment on instructors. The FGD with the students assisted, in confirming instructor's views of BL, revealed some important findings and showed signs of communications gaps.

Three of the instructors recorded their lectures using Panopto and had them available online. All instructors reported a drop-in class attendance and had to stop providing recorded lectures. Dr. Radium reported "50% of the students skip classes due to lectures being available later on". Irresponsible behavior by some of the students created a negative perception of a facility that the instructors were providing in the past. Students skipping classes has been reported in literature and is a common

practice when material is provided online (Poon, 2013). Although the instructors reported a drop-in attendance due to posting of recorded lectures online and stopped providing them. The student FGD theme S2: Greater convenience, shows that students prefer to have the recorded lectures available online. Students expressed signs of relief for the lectures to be available online. This shows a gap in student-instructor communications. For the purpose of this study and within the context of my institution, this was an important finding. The FGD revealed student opinion on the recorded lectures. This is important feedback for the instructors and the institutional leadership. This needs to be studied further, to see if the instructors were able to discuss this matter with students before discontinuing the facility. With the information available, it is recommended that the instructors re-visit the issue at hand. Only one of the three instructors reported actual numbers in terms of attendance. Looking at the evidence above from one instructor only, approximately 50% students were skipping classes. What about the percentage that was benefitting from the recorded lectures? Or maybe the ones not attending were actually watching the lectures later on. These are some of the scenarios that need to be studied further.

I found out that irresponsible behavior by some students can negatively affect perceptions of instructors. Based on the discussion above when applying BL, it is recommended to design the BL approach specifically for each course keeping in mind students' expectations and requirements (Poon, 2013). It is also advisable for the instructors to be flexible and not make assumptions. Students skipping classes because of lectures posted online might have not been investigated. But it was assumed that attendance dropped because of posting lectures online. This matter should be further reassessed to find a feasible solution.

Another example of expectations was displayed in Theme T4: Success of BL dependent on students. The theme revealed that when teaching using the BL approach, instructors perceive that the students have a responsibility to be compliance (Smyth et al., 2012). That success from BL is dependent on student taking ownership of their work (theme T4). And that BL can benefit only the students who take responsibility of their work. This is an important point raised by the instructors that students need to take ownership. Maybe when the instructors post material online, they expect students to complete work on time, and assume that they understand most of the content. Literature does show that in a BL environment, instructors could have very high expectations from the students (Brent et al, 2015). As mentioned above expecting students to be responsible is a realistic expectation, by the instructors at MS. However, we do not know exactly what level of responsibility the instructors at MS expect from students. It would be worth exploring instructor expectations in the future. Nonetheless, high expectations by instructors can create false hopes.

In relation to the above discussion student FGD theme S4: Balancing e-learning and f2f learning, revealed an interesting feedback from students. One of the students said that instructors cannot entirely rely on the technological tools. There needs to be an organised way of implementing the strategy. The student further said that online material or demonstrations are only useful when they are explained by the instructor. The students have expectations too, and they are directed towards the instructor. Theme S4 showed that students expected the instructor to be more involved, give explanations, and implement technology in a more organised manner. This discussion shows that, instructors have expectations from the students, and students have expectations from the instructors. When expectations are not met, the students and instructors blame technology and perceive that BL has failed (Bok

Center, 2020). Based on the discussion we can conclude that in this given situation technology cannot be blamed. But rather it is the improper usage of technology by both instructors and students, that can lead to misunderstandings. We can conclude, that when applying the BL approach, expectations need to be set right from the very beginning, and if possible, also include students in the decision-making process.

On the other hand, when students show interest in using technology this creates a positive perception of BL among instructors as was found in theme T2B: Better Student engagement. Instructors generally perceived BL as a positive contributor to the students' learning. Reporting on the effects of BL on student performance is not easy. It is widely thought that BL enhances the performance of the learners. However, Zhao and Breslow (2013) carried out a literature review of 42 studies that implemented BL and compared their results to previous semesters that were not using the blended learning approach. Almost all the studies showed that there were no significant changes in student results; in a number of cases there were slight improvements in the average class achievements. A similar arose from my study, no significant or major improvements are reported. However, both students and instructors were inclined to report a positive experience in using the BL approach. And as I reported earlier that instructors said that student outcomes were improved. In my opinion BL based teaching does create a sense of positivity and promotes a better learning environment. Hence showing improved results and a positive reporting by both instructors and students. The improvements are not major, but the experiences reported are not negative also, but rather positive.

Six emerging themes revealed the perceptions of students on the use of BL technologies in the classroom. These themes confirmed what the instructors perceived and reported about student experiences with BL. Now that students are becoming

more and more responsive to BL (Xu & Jaggars, 2013), it is also critical to understand how they receive and navigate the new teaching methods in relation to their experiences as students. Students are more likely to utilise the BL system if this will improve their learning (Islam, 2013), and this is essentially reflected in the present study's findings. Students self-reported an improvement in performance. The results showed that students believed that BL makes their educational experience easier, as well as making their coursework convenient and improving their communication skills.

The themes (S1) an easier learning experience and (T2) Impact on student may be explained by the creative influences in learning through technology. Meaning that adding creativity to learning through technology gives the students a better learning experience. I found out that BL was PE of use by the students and eased the learning experience for students. And the instructors reported a positive effect on students. In general, creating a better environment, for both the instructors and the students. Horng et al. (2005) in their study on three award-winning teachers reported that creative teaching improved student performance and promoted development of creative thinking among students. One of the effective teaching strategies of the award-winning teachers that Horng et al. (2005) mentioned was the use of technology for teaching. Learning through technology can also influence creative learning based on the tripartite process including the instructor, the student, and the technology (Shabalina et al., 2016). The possibility of developing creativity through the assistance of technologies shows that stimulation of creative learning in the classroom enhances the whole learning experience (Shabalina et al., 2016). As reported by instructors, the VLS, Case It, Poll Everywhere, Plickers, and Quizlets in my study promoted creative learning and hence better student learning. In another instance,

technological tools have the capacity to increase immersion and bridge the psychological distance between virtual characters and viewers (Kim et al., 2017). This allows instructors to have a better relationship with students, and students feel more comfortable approaching instructors (Kim et al., 2017). Based on the participants' accounts in my study, blended learning enhances course instruction, improves student performance, and has a positive impact on the students' engagement. Enhancing creativity and evoking the interest of the students are critical for instructors and were achieved by blended learning strategies in the classroom at MS. Not all use of technology is innovative and creative, from my work I also found out, that it's usually not just the tool itself, but the way it is being used in the whole pedagogical approach makes the difference. In my case I saw how each individual instructor used the various tools in their own way tailoring it to their individual subjects.

Participants also expressed the view that BL strategies have a long-term impact on the students' performance. Blended learning strategies can reinforce learning outcomes, accompanied by conventional instructional materials. Application of technology in education is geared towards increasing the students' motivation to learn. This implies that technology is a helpful feature in identifying strategies to improve learning outcomes of students (Eryilmaz, 2015). Lämsä et al. (2018) further explained that the collaborative aspects of technological tools for education are suitable in improving the communication and coordination skills of students. Many of the instructors use CANVAS, where the assignments, homework, reading materials, schedules and related items were posted. Using similar LMS assists the students. This has resulted in positive student performance and an improvement in the communication skills of the students (Lämsä et al., 2018). Leading to instructor satisfaction from the course. The above discussed points about student success, better

communication, better coordination, and increased student motivation, can be translated to instructor satisfaction (Eryilmaz, 2015).

During class observations I saw and found out that the instructors showed satisfaction when they saw students were motivated. Immersive experiences have been demonstrated to influence the attitudes and behaviors of children and adults alike (Bailey & Bailenson, 2017). BL technologies applied in the classroom should focus mainly on the cognitive development and motivational factors of the students. Results of this study, discussion above and in Question 2 shows that getting the students motivated will result in the instructors motivated too. For instance, engaging learners in a VL environment has been claimed to improve their learning, as reflected in test scores, while improving their test scores, motivation to learn, and retention of information (Merchant et al., 2014). The findings from my study also showed that educational technologies can help increase motivation, engagement and critical thinking, and enable knowledge transfer from simulated environments to real-world applications.

However, Xu and Jaggars (2013) suggested that BL was not beneficial for all courses. Further study needs to be carried out to confirm that this could be true in the case of MS. The current views of only eight instructors, six teaching science courses and two teaching humanities courses, is not a sufficient number of instructors to support this point. Xu and Jaggars (2013) revealed that in their study students preferred traditional teaching instructions for hardcore science or lab-based courses and math-based subjects. This may be associated with the finding in my study as mentioned above that students feel that the use of technological tools need to be balanced with non-technological teaching strategies.



BL being perceived as convenient supports the current interest in the said strategies as learners often choose the types of learning strategy that are convenient for them. Unreal expectations, time management issues, problems with accepting responsibilities and challenges with technology are identified as major challenges in implementing BL in undergraduate learning (Vaughan, 2007). However, even with the previous research on the positive relationship between BL learning and learning outcomes, the extent of this relationship between the two variables is currently ambiguous. The themes from the analysis provided a more concrete picture of how students benefit from the implementation of BL strategies in the classroom. The main theme T1 showed that students can benefit from a BL approach. The students perceived that they benefitted by better access to the study material, by being more engaged in class. This was also confirmed by the instructors, stating better performance by the students.

The present study showed that students feel that technological tools can cause frustration and confusion and students feel that BL requires additional time or effort. The findings from the FGD revealed that students still encounter challenges in using BL, which included, but were not limited to, how to balance these technologies with traditional teaching strategies, confusion and frustration, and time management. The students felt that they had to work in class, complete tasks at home, and also show their presence and work online, and complete online tasks in the classroom. The students expressed difficulty in managing the two at the same time.

The main argument for using technologies in education is that people can learn through the connections of various ideas and concepts in the shifting reality of constantly altered information, which affects overall performance (Kim et al., 2017). Through integrating different technological and non-technological strategies in

learning, students are exposed to various experiential and traditional learning approaches. However, the integration of technology comes with several disadvantages. Based on the participants' accounts, students felt they had to exert more effort and spend more time learning these technological tools, which could be detrimental to fully implementing BL strategies in the classroom.

Although this study is based around a very small group of students, it still captures some important feedback from students in relation to a BL approach. The response from students that they felt that reading outside the classroom is extra work, and that they felt frustrated at times, is valuable information. This shows the role of students' perceptions of BL, as it provided new insights on the disadvantages of BL. This information is valuable for instructors when implementing the BL approach. As the discussion above shows that students can influence instructor perception of BL. We found out that irresponsible behavior by students in a BL environment can create a negative perception of BL among instructors (Barks et al., 2011; Bok Center, 2020; Poon, 2013). It is also recommended to design BL dependent on the students' requirements for each course. It is advisable for the instructors to be flexible and not make assumptions. I found out that improper usage of technology by both instructors and students can lead to misunderstanding. This can be avoided by including the students in the decision-making process and setting the expectations.

It is important for both students and instructors to have positive perceptions on technology incorporated in learning to use such technologies within meaningful contexts (Islam, 2013). The findings in the present study showed how students receive and experience educational technologies and their meaning-making processes in response to the increasing use of technologies in the educational context. Most of the students perceived the BL approach to be beneficial and useful in the whole learning

process. They felt that they were well prepared and enjoyed the activities in class. However, there were a very few students who felt frustrated by the extra work they had to do outside class.

## **5.2 Interpretation of the Results Based on Technology Acceptance Model**

The analysis for this study is carried out in light of technology acceptance model (TAM), as discussed in the literature review chapter 2. TAM looks into the perceptions of instructors, and what external factors can effect perceptions. TAM focuses on five main points, “these constructs are perceived usefulness, perceived ease of use, attitude towards using, behavioural intention to use, and actual use (Davis, 1989)” (Wright, 2018, p.6). PU and PE of use are defined in chapter 2. Study of instructors at MS confirms that PU of technology and PE of use does contribute to acceptance of technological tools. The other two constructs attitude towards using and behavioural intention to use are out of scope for this study. However, the study does focus on the actual use of technology. Instructor narratives, and themes discuss the actual use of technology by instructors. According to TAM perceived usefulness of technology (PU) and perceived ease (PE) of use has an effect on user’s perception of technology. This was evident in this study, both instructors and students reported PU and PE had a positive effect on their perceptions. On the contrary, there were also cases of instructors and students reporting to not view PE of use and PU of technology. More details are discussed below.

Findings of this study confirmed that when instructor PE of use, and PU of technology, they had used the BL approach. As discussed in the findings above Dr. Sodium, Dr. Gold, Dr. Magnesium, Dr. Radium, and Dr. Resium, all saw the PU of technology and PE of use, and they applied the BL approach in their classrooms. According to TAM, PU of technology, and PE of use, encourages instructors to

implement technology in their classroom (Cardak and Selvi, 2016; Jimenez et al., 2020; Hong et al., 2002). Findings of this study confirmed that when instructors do not see PU of technology and PE of use, they do not implement the BL approach.

This study further builds on the concept of TAM and looks into the perceptions of instructors, and what external factors can affect perceptions. TAM can be used to look at user's perception of technology, and how external factors might effect the perceptions. The perceptions of BL to be not easy to use or not useful were formed based on certain external variables.

The evident external factors that effected instructor perception of BL in this study were institutional support, and student response and perspective towards BL. According to Jimenez et al. (2020), institutional support has been proven to be an external variable within the TAM framework that effects instructors perceptions of technology. Jimenez et al. (2020), reported that when instructors feel supported by the institution, they see BL to be both PU and PE. This was also evident within the findings of this study, for the instructors using the BL approach, the instructors reported that they felt supported by the institution. As discussed above in chapter 4 theme T3: Institutional support for BL, support by the institution created a positive perception of BL among the instructors. On the contrary, the study also showed that the institution did not play a role in shaping a planned implementation process. Although support from the institution's information department was available as reported by the instructors. But findings showed that BL was not implemented institution wide, but rather by individual instructors, as discussed above (section 5.1, pages 141-144). Literature shows that when users do not see the PU of technology and PE of use, they will not use technology (Barks et al., 2011; Bok Center, 2020; Stupnisky et al., 2018). As discussed above instructors lack of knowledge in

technology use effects their willingness to adopt BL (Brent et al, 2015). According to TAM's external variable FC, institutional infrastructure was not available and could have contributed negatively to forming instructor's perception of technology.

It was evident from the findings of this study that student perspectives and response to BL approach did have an effect on instructors perceptions of BL. Jimenez et al. (2020), do not list student response as an external variable within the extensions of TAM framework that effect instructors perceptions. A suggestion is to add student response as an external variable of TAM that effects instructors perceptions. Dr. Gold, Dr. Calcium, and Dr. Iron did not see the PU of technology, because of student's response to the BL approach. Dr. Gold had to discontinue using BL in the classroom, as he felt that students were not ready for it. Dr. Gold later reintroduced BL in his classroom, when he saw the students were prepared. In the case of Dr. Calcium, she was using the BL approach and saw the PU of technology, but did not report PE of use, due the students not appreciating her efforts in regard to BL. Due to Dr. Iron's past experiences with BL, she perceived technology to be distracting for students and did not see the PU of technology. This shows that student response to BL effected instructors perceptions of the BL approach.

Findings also showed that PE and PU of technology by students in a BL environment also has a positive effect on the instructors perceptions of BL. In cases where students did not use technology because they did not find it easy or useful enough, the instructors re-designed the approach. It can be concluded that in an educational environment, in some cases PE and PU of technology by students can be translated to PE and PU of technology by the instructors. As discussed in question 3 above, in the FGD several students did mention that they saw the PU of BL when it is balanced with non-technological teaching methods. This was also mentioned by Dr.

Calcium and Dr. Magnesium. Dr. Magnesium gave a similar statement that in a BL environment the technology related learning and traditional methods need to be balanced. While Dr. Calcium did not acknowledge this idea, she felt that the students were not cooperating. Rather than acknowledging the problem, she perceived technology not easy to use. In theme S4: balancing e-learning and f2f learning, students suggest that the instructors should base online work on student progress. That is the instructors can increase or decrease the load based on class progress. As discussed in chapter 4, there was also a case when the student saw the PU of technology while the instructors perceived it to be not useful. In the case of recorded lectures, the students found them to be useful, while the instructors perceived them to be a cause of absence from the classroom. In theme S5: challenges associated with BL, students referring to VLS used by Dr. Calcium. The students said that they felt frustrated and confused when VLS did not work in class. As discussed in chapter 4 Dr. Calcium perceived that students are not willing to put in an effort or take responsibility. As discussed above in relation to the posting of recorded lectures, balancing the workload, and VLS not working in the classroom. All the three factors show a communication gap between the instructors and students. When the instructors perceive that the students are not completing their work, the students perceive that the workload is not balanced properly. When the instructors perceive that students are missing classes because recorded lectures are posted online, it is true. But the students also have a reason for missing classes, that is they say due to the high workload in a medical school, they are working on other projects. And they prefer to listen to the recorded lectures later on at a convenient time. And when VLS did not work in class, the students perceived it to be frustrating, and Dr. Calcium perceived it to be students not cooperating. All these fit into the external variable of TAM's extensions, content

quality (CQ). CQ is defined as “extent to which the information fits user needs in terms of information organisation, relevance and actuality, availability of support materials, and accuracy of terminology” (Jimenez et al., 2021, p. 10). All the three issues discussed above can be classified under extent to which the information fits user needs, and organisation of information. Findings of this study show that lack of communication and lack of organisation, in view of CQ, leads to instructors and students not seeing BL as PU and PE of use.

In the context of this study. This study looks at instructors perceptions of technology usage in an educational institute in the middle east. TAM was useful in examining the PU of technology, PE of use, and the external variables that formed instructors perceptions at MS. I particularly benefitted from the flexibility that TAM provided, and the vast external variables associated with TAM, assisted in the analysis. TAM can easily be applied to all cultural settings as it studies human behaviour towards possible acceptance or rejection of technology (Granic & Marangunic, 2019). As suggested by Davis that perceived usefulness (PU) of technology and perceived ease (PE) of use has an effect on user's perception of technology (Davis, 1989). PE of use and PU of technology, these two prerequisites are a good measure of studying users acceptance or rejection of technology. I found PE of use and PU of technology, were a good measure of instructors perceptions for the purpose of this study. Granic and Marangunic (2019) carried out a systematic literature review on the current state of TAM application in the field of learning and teaching. They found out that TAM is used by many cultures to study users acceptance of learning technology. They reported that majority of research using TAM in an educational context comes from Asia, then Europe, then North America, and lastly Middle East and Africa (Granic & Marangunic, 2019). It is also interesting

to note that 83% of the TAM related research in education was focused on university students and 17% involved high school students, instructors and employees (Granic & Marangunic, 2019). This shows us that there is a gap in research related to TAM being applied to university instructors in the middle east. Granic & Marangunic (2019) report that further research is required using TAM and suggest that each country can contribute by applying TAM to education within their respective systems. Therefore, this study contributes to literature by applying TAM to study instructors perceptions at MS based in the middle east.

### **5.3 Implications of the Blended Learning Approach to Teaching and Learning**

The existence of technology in the realm of education reflects the ubiquity of technology in the world, thus understanding how instructors and students perceive the current status of BL and its potential is vital. BL for education has unique features that emphasises immersion and ease of use, while positively affecting the cognitive abilities of students. In this sense, the present study contributes to the existing literature on the growing interest on BL strategies as means to advance innovation in education. This study specifically contributes to research on BL approaches in the middle east. There is a gap in research in regard to studying instructors perceptions of BL in institutions based in the GCC countries (Monteiro, 2019). Other educational institutes, instructors, students and senior administration based in the GCC countries can learn and benefit from the findings of this study.

The specific factors which may lead to the improvement in learning are not highlighted in current literature. Previous studies have been ambiguous in terms of establishing the extent of the relationship between instructor perceptions of BL, BL implementation and learning outcomes, specifically in regard to test scores, retention of information, and motivation to learn.



As BL is more of a teaching tool, it is best to assess how it is implemented and perceived by the instructors and how student behavior affects instructors. The findings from the present study contributed to addressing the gap in literature (Wong et al, 2018; Anthony et al., 2019; Atmacasoy & Aksu, 2018; Kemp, 2013; Rush, 2008; Tamim, 2018; and Tondeur et al., 2016) which focuses on the attitudes of instructors towards BL. The literature refers to gaps in instructors perceptions on BL, and instructors' implementation of BL. Findings from the study can be used for consulting to other educational institutions in the GCC countries where instructors, students, and the leadership can learn from PU of applying BL, better instructor efficiency, better implementation of BL by instructors, time saving, better student engagement and new teaching initiatives.

Innovative technologies are useful for college courses and can ensure inclusivity and skill-building in a controlled environment. Perceptions of instructors regarding the relevance of technological tools in education can change over time. Therefore, it must be ensured that the instructors gain a more positive regard of the ability of technology to create interactive learning.

The study showed that both students and instructors are leaning towards the use of technological tools in education, provided that it produces positive results for instructors and students as well as providing more learning opportunities. Educational leaders in the GCC countries can utilise the results of the present study. This can be achieved by pushing for policies that promote the implementation of innovative technologies. And create avenues where instructors can become more exposed to these strategies, without having to worry about the extra time and effort in learning and navigating these tools. Educational leaders in the GCC countries must consider

the situation of instructors who are not well-versed with these tools and consider alternatives that will not discriminate between instructors.

#### **5.4 Recommendations for Future Research**

Previous studies have already provided evidence that blended learning can possibly change the way instructors handle classrooms and promote experiential teaching. Despite this, there are still limitations to full integration due to skepticism regarding the sufficiency of evidence and effectiveness of the innovative technologies as alternatives to traditional teaching methods. One major barrier is the instructors' lack of awareness of what products are effective in terms of realising positive learning outcomes for students. Future practitioners are suggested to consider investigating the effectiveness of different specific technological tools used in education. The responsibility lies on instructors and the leadership. The leadership or institutions can provide training, workshops, seminars related to specific technological tools in education. This will create awareness in the community. And the instructors should take the initiative to attend conferences and activities related to innovation in teaching. It would be beneficial to look at the tools' major advantages and points of improvement. This will provide instructors information on which products would be more beneficial to them.

A recommendation when designing a course to apply BL, is to keep the students' expectations in mind, and include students in the decision-making process. It was out of scope of this study to look deeper into the types of responsibilities and expectations the instructors have from students in a BL environment. Further research on instructors' expectations from students in a BL environment is required. And further research on instructor student communication in a BL environment is also recommended.

Instructors who have not used the BL approach in the past, lack technical knowledge, fear technology, and have had a bad experience using technology. They should revisit the idea, as due to technological advances, new technologies have emerged. They should further explore the idea, talk to other instructors in their institutions using the BL approach, and seek training and support.

Understanding the implementation process of BL learning about technologies would enable an enhanced understanding of the practice. Training instructors to be more strategic can help them implement education technology in their classrooms (Nelson et al., 2016). Therefore, training of instructors should be done to allow the acceptance and widespread usage of innovative technologies in the classroom setting (Martirosov & Kopecek, 2017; Shelton, 2017). Practitioners and educational leaders in the GCC countries should focus on developing programs for instructors to provide them with the necessary skill set to handle technological tools.

It is not known how blended learning strategies are perceived. Are they perceived as equal or better alternative to the conventional approach, in delivering the necessary study materials. There is a need for further investigations on the impact of BL on learning in the classroom. However, there is a difficulty in measuring the impact of BL as it is often introduced by one of the instructors in an institution, and not officially by the institution as a whole. It is suggested that further studies focus on developing standards that will guide instructors in assessing the effectiveness of these tools in the classroom.

There are also perceived challenges that could limit the usage of BL technologies in the classroom setting. Some challenges include the use of complex technology, how credible is the tool, and the results might be unknown. Further development of theoretical models focusing on the utilisation of BL in education is

suggested. The lack of significant changes, and absence of clear models, are just some of the challenges to be considered in applying blended learning and technological tools to education.

### **5.5 Limitations of the Study**

Despite the importance of the findings, the study must still be interpreted in the context of its limitations. This study aimed at finding out factors that effect instructors perceptions and views in a blended learning environment. A factor that this study focused on is the effect of students' perspectives on instructors perceptions of BL. The study also aimed at finding out why some instructors might choose not to use the BL approach. The study also aimed at finding out how instructors perceptions of BL influenced the implementation of BL in their classrooms. When BL is applied one size does not fit all, and it is best practice to study BL within the context of each institution's environment. The findings of this study are very specific to the Medical School, and to the context of this study. The instructors are employed from other western countries, teaching middle eastern students, in a Medical School based in a GCC country.

The rich data, diverse views of eight instructors, and data analysis assisted in addressing the aims of this study. Most of the research questions were designed around investigating the external factors that might effect instructors perceptions. In the initial stages of my thesis, I had envisioned that external factors play an important role in forming instructors perceptions of BL. And the findings did reveal the importance of external factors, such as institutional support, effect of student perspectives, and exposure to training. Findings also showed that the external factors do assist in forming personal views of the BL approach. However, the findings of this study revealed BL's effects on the instructors at a personal level. And how, personal

interests, personal motivation, PE of use, PU of technology at a personal level can effect instructors perceptions. I discovered that even when some of the external variables of TAM were present, even then the personal factors played a dominating role. For example, in the case of Dr. Iron and Dr. Tin, they did not see PU of technology. Although all the other instructors who were in the same environment saw PE of use and PU of technology. And one of the external variables of TAM, FC in the form of institutional support was available equally for all the instructors. However, in the case of Dr. Iron personal past bad experiences with technology played a more dominating role. And in the case of Dr. Tin, personal anxiety and fear of technology was more convincing. These findings have inspired me, to further inquire, the effect of personal factors on instructors perceptions of the BL approach.

There are many variables at play when BL is being applied at an institution. The institution's management, students and above all the individual instructors and their preferences play a major role. As such, it would be challenging to contextualize and generalise the results of the study in the broader population. Further studies must be done to gain in-depth knowledge on the experiences of instructors with regards to educational innovation.

Another limitation can be attributed to the research design utilised, which was narrative and generic qualitative analysis involving thematic analysis of instructors' and students' perceptions on BL. Smith (1978) argued that the use of such methods is the simplest and broadest way to gain knowledge especially in classroom studies. The use of such approach is beneficial in understanding the viewpoints of the participants; however, it does not provide explanations on the explicit relationships between each of the variables that influence the acceptance and use of BL in the classroom. Thus, no direct correlations can be made between these variables. To address this, future

researchers could utilise a quantitative method to understand how each factor is linked to another, providing an emerging theoretical model of how BL strategies can be implemented in the educational context.

## 5.6 Conclusion

A pedagogical approach using BL is claimed to involve a well-designed theoretical framework highlighting the strengths, limitations, and practical applications of BL technologies in educational contexts (Graham, 2012). This was not evident at MS. There was institutional support for implementing the BL approach. However, there were no signs of a planned implementation by the institution. The interviews showed that these were individual instructor initiatives. The institution did not plan a well-designed implementation strategy where the strengths and limitations of the BL approach were thoroughly studied.

Use of technology, students' perspectives, instructors PU of technology, PE of use, and role of TAM external variables have been evaluated to establish how technology is perceived by instructors. Application of innovations and new technological tools are important for any institution to grow. Thus, the present study is able to contribute to the growing knowledge on the perceptions of instructors on the utilisation and implementation of innovative technologies in the classroom. The findings offer insights on the perceptions of instructors and the effect of student perspectives on instructors use of BL strategies in the classroom. The addition of the students' perspectives allowed for deeper insights into the actual impact of innovation, on instructor perceptions.

In conclusion I found out that all the three research questions were dependent on each other. That is, integration of technologies is dependent on the instructors perceptions of BL approaches, and the instructors perceptions are also effected by

student perspectives of BL. It is concluded that integration depends on instructors' readiness and beliefs, the availability of resources and support from the institution. If instructors perceive technology to be not useful, they will not implement it in class. It is also concluded that the BL approach depends on the individual instructor and can alter from instructor to instructor, depending on personal preferences, past experiences, and the technical support available. The general perception of the BL approach expressed by the instructors at MS was positive. The six instructors using it perceived BL to be useful and to contribute effectively in their class. Most of the instructors thought that BL can improve teacher efficiency in the classroom. However, the two instructors not using the BL approach perceived it to be distracting and a waste of class time. Based on these findings, it seems that instructors are leaning towards utilising BL strategies in the classroom so long as the learning outcomes are successful, and they see PU of the BL approach.

It is concluded that instructors had a positive perception BL strategy in the classroom so long as the learning outcomes were successful. The study also showed that personal interest and benefits in BL motivates instructors. Personal benefits reported were BL is easy to use, and BL saves time. Personal interest reported were, an interest in researching BL techniques, BL is fun to teach, and BL is energising.

It is also concluded that when instructors perceive BL to be not useful, they do not implement it in their class. In conclusion, I found out that past bad experiences with BL and lack of technical knowledge can create negative perceptions, resulting in not implementing BL.

It is concluded that in a BL environment, instructors perceive that students have a responsibility, too. They expect students to take some responsibility towards the assigned work. Students' irresponsible behavior in a BL environment can have a

negative effect on instructors' perception of BL. This negative perception of BL among instructors, instilled by student behavior could convince the instructors not to use BL in the future.

It is concluded that instructors cannot be persuaded to perceive BL to be useful for them. Instructors' perception of BL depends on self-realisation, that BL is the right approach for them. In this study the reasons that emerged for perceiving BL to be the right approach for the instructors, were, training, introduction to BL, and perceiving BL to be useful for their course.

Results also showed that MS lacked a planned implementation of the BL approach institution wide. A recommendation for MS is to come up with a plan to implement BL institution wide, after studying the strengths and limitations of the BL approach. Instructors reported better student engagement, a better student-instructor relationship, and enhanced course instruction. The instructors themselves found BL to be a motivator for them.

It is also concluded that the most appropriate way to implement BL in a specific context needs to be studied carefully.

A recommendation for MS is to come up with a plan to implement BL institution-wide, after studying the strengths and limitations of the BL approach. Research shows that a planned implementation by the institution is positively perceived by the instructors (Ma'arop & Embi, 2016).



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## Appendices

### Appendix 1 – Medical School (MS) Ethics Approval

<b>Approval</b>		
Document No.:	Date:	Page:
HRP-522	6 Sept 2015	Page 1 of 1

May 08, 2016

Dear :

On May 04, 2016 the IRB approved the following through May 03, 2017 inclusive.

Type of review:	Initial review
Title:	To Blend or not to Blend: Lessons Learnt from Introducing Blended Learning at a Medical School in
IRB number:	16-00007
HHS grant title and ID, if any:	None
QNRF grant title and ID, if any:	None
Documents reviewed:	<ol style="list-style-type: none"> <li>1. Research Plan dated April 25, 2016</li> <li>2. Informed Consent dated version April 24, 2016</li> <li>3. HRP 200 – Initial Review Application</li> <li>4. HRP 201 – Research Personnel</li> </ol>
Level of review:	Expedited
Category:	7

Before May 03, 2017, you are to submit a continuing review to request continuing approval or closure. If the IRB does not grant continuing review, approval of this protocol ends after May 03, 2017.


Copy of approved consent document is attached.

In conducting this study, you are required to follow the requirements in "INVESTIGATOR GUIDANCE: Investigator Obligations (HRP-800)."

Sincerely,

Director  
Human Research Protection Program (HRPP)

## Appendix 2 – University of Liverpool Ethics Approval

		UNIVERSITY OF <b>LIVERPOOL</b>	<b>ONLINE PROGRAMMES</b>
Dear Syed Ahmed Hasnain			
I am pleased to inform you that the EdD. Virtual Programme Research Ethics Committee (VPREC) has approved your application for ethical approval for your study. Details and conditions of the approval can be found below.			
Sub-Committee:	EdD. Virtual Programme Research Ethics Committee (VPREC)		
Review type:	Expedited		
PI:			
School:	Lifelong Learning		
Title:	To blend or not to blend: Lessons Learnt from Introducing Blended Learning at a Medical School in (TO BLEND OR NOT TO BLEND)		
First Reviewer:	Dr. Lucilla Crosta		
Second Reviewer:	Dr. Anthony Edwards		
Other members of the Committee	Dr. Martin Gough, Dr. Morag Gray, Dr. Eileen Kennedy		
Date of Approval:	26th May 2016		
The application was APPROVED subject to the following conditions:			
<b>Conditions</b>			
1	Mandatory	M: All serious adverse events must be reported to the VPREC within 24 hours of their occurrence, via the EdD Thesis Primary Supervisor.	
This approval applies for the duration of the research. If it is proposed to extend the duration of the study as specified in the application form, the Sub-Committee should be notified. If it is proposed to make an amendment to the research, you should notify the Sub-Committee by following the Notice of Amendment procedure outlined at <a href="http://www.liv.ac.uk/media/livacuk/researchethics/notice%20of%20amendment.doc">http://www.liv.ac.uk/media/livacuk/researchethics/notice%20of%20amendment.doc</a> .			
Where your research includes elements that are not conducted in the UK, approval to proceed is further conditional upon a thorough risk assessment of the site and local permission to carry out the research, including, where such a body exists, local research ethics committee approval. No documentation of local permission is required (a) if the researcher will simply be asking organizations to distribute research invitations on the researcher's behalf, or (b) if the researcher is using only public means to identify/contact participants. When medical, educational, or business records are analysed or used to identify potential research participants, the site needs to explicitly approve access to data for research purposes (even if the researcher normally has access to that data to perform his or her job).			
<b>Please note that the approval to proceed depends also on research proposal approval.</b>			

Kind regards,  
Lucilla Crosta  
Chair, EdD. VPREC



### Appendix 3 – Faculty Interview Guide

#### Interview questions

1. Give a brief introduction of how BL was introduced in your classroom?
2. How does BL impact your teaching?
3. What kind of changes did you have to implement in your classroom?
4. How well have the students adapted to BL?
5. What is your opinion on the implementation of BL in your classroom?
6. Did you observe any changes in students' performance as a result of applying BL?
7. What did you like about BL?
8. If you were to change anything, what would you recommend with regard to use of BL.

**Appendix 4 – Focus Group Discussion Guide****Guide for focus group discussion**

1. How were you introduced to BL?
2. How do you think BL has affected your level of understanding in this class?
3. Provide some examples of your in-class experience with BL.
4. What is the most important aspect of BL, you would like to discuss further?
5. What aspects of BL did you like?
6. What aspects of BL did you not like?
7. General comments, additional discussion, anything that we have missed?



**Appendix 6 – Sample page of class observation notes****Dr. Sodium's Class Observations**

Students walked into the classroom enthusiastic and started picking up numbers before the teacher walked into the classroom. There were numbers from 1-10, printed on cards left on a side table in the room. The room was set up as a seminar room. Students were sitting in groups of 2, 3, and 4. PowerPoint was used to start with, there was 30 mins of lecturing and then 30 mins of "Case it" was used. The environment of the class was very relaxed to start with, students could choose to sit in a place of their choice. There were 10 groups in total. Students were talking to each other and discussing random materials before start of the class. The general set up of the room was comfortable and well organized. Then the teacher walked in and the slides were projected on the screens, there were 4 screens in the class and the same material was projected on all 4 screens, each student could easily view slides projected on the 4 screens. During the lecture, the teacher was constantly walking from table to table and talking to students while lecturing. The slides had been emailed to the students in advance and I observed that some of the students were viewing the slides on their own laptops. During the lecture different students asked various questions and each time there was a discussion around the asked question. The questions were answered by the teacher along with other students in the class. The lecture was very interactive in general, once a question was asked, students were given time to discuss and any student comments to compliment the topic were welcomed by the teacher. Cases were assigned on the "Caseit", the teacher demonstrated on how to get to the case and how to work. Once the students had logged in and started working the teacher walked from table to table to assist students. Students started working on the assigned work in groups, and there as a lot of discussion and group work, the students seemed enthusiastic and discussing among each other. It was observed that some students were guiding others on the work to be done. The students who were not that active during the lecture were more active during the activity. During the activity there were also students who were just sitting around and not doing any work. The students were also free to walk around and seek help from other students.

## Appendix 7 – Assigning Codes and Color Codes to Each Sentence

<a href="http://www.caseitproject.org/about-alt/">I use Case It projects, it is available online: http://www.caseitproject.org/about-alt/</a> , simulations are available, free of charge to teach case-based science, it can also be used for collaboration among individuals in class.	collaboration	
It is an effective tool for inquiry-based learning and is very effective. I find it very useful in my teaching and use it regularly in my class.	Effective	Useful
Another tool that I use is plickers, it is a device-based activity, where students get different shapes, and they can pick up a card and let me know that this is their answer, it does not show the actual answer, and then I can plug it in, to see response of the class, keeping the responses anonymous, in other words, they can tell me their answers without others knowing, and I get to know where the class stands from their answers.	Better understanding	
I think using all of the above is BL for me, and it has proven to be very beneficial for me personally, as it keeps me going and is a very fun way of teaching.	Definition fo BL	
Using different teaching techniques certainly motivates me personally and that was one of the reasons I started using different teaching tools to keep me motivated in class and it certainly did motivate me.	Fun way	Motivates
It has had a positive impact in general, it gives the students a different dimension, a different way of thinking.	Impact of BL	
It reinforces what I am teaching, so I lecture about the material and all these additional activities is just more support for me, and more good information for the students.	Reinforcement	Support
I modified the way my classroom looks, I couldn't teach in the same lecture hall setting.	Classroom modification	
I usually teach in a seminar room style, where students sit in groups casually and I can move around and teach them, also observing them how they absorb my material.	Group work	
My lectures are open for discussion, I never keep talking and not let the students discuss, I leave it open for other students to talk and explain the problems.	Discussions	
I see the students for 2 semesters for 3 hours per week, and two thirds of the sessions I use teaching tools to support my teaching.	Supportive	
It varies from class to class, initially students did not accept it in the very beginning when I introduced it, they would say that this is too much work, but as I modified and over the years they have adapted well to it and enjoy the experience.	More work for students	Students adapted

**Appendix 8 – Definition of Each Color Code**

	Way BL was introduced, supported by institution, prior experience. What each member thinks about it, definition	Traits of Blended Learning				
	Personal motivation/benefits/drive/experience			Circumstantial Motivators		
	Benefits/advantages of BL application			Universal Benefits of Blended Learning		
	Student benefits of BL					
	Impact of BL					
	Peer pressure					
	Student engagement/discussion/groupwork					

## Appendix 9 – NVivo Coding Book Screenshots

<b>Number of Files Coded</b>	8
<b>Number of Coding References</b>	33
<b>Hierarchical Name</b>	Codes\\Adapting to BL
<b>Coded Text</b>	The other change we had to make was to remove the recorded lectures we posted, as students started skipping classes in hope of understanding by listening to lectures posted online, and then they were not listening to online versions as well, as we can check and tell that they are not being viewed. We had students skipping classes, and not viewing online material, this caused a problem, so we stopped posting recorded lectures online.
<b>Number of Files Coded</b>	4
<b>Number of Coding References</b>	4
<b>Hierarchical Name</b>	Codes\\Intro to BL\\Progression of BL
<b>Coded Text</b>	I teach labs combined with my lectures, we do quizzlets, CANVAS, youtube vidoes, I assign online quizzes and modules, this is my definition of BL and this is how BL was introduced in my class. I also lecture to students in the typical teacher centered style where its needed, teaching students using a white board and markers. There are certain terms that need to be taught that way and then softwares and online assistance is used to further reinforce the concepts.
<b>Number of Files Coded</b>	3
<b>Number of Coding References</b>	3
<b>Hierarchical Name</b>	Codes\\Benefits to Instructor\\Accessibility
<b>Coded Text</b>	For me it is all positive, makes my life very easy, everything is organized online, less work for me trying to organize material. Everything is made available online, students can view it at their own pace, in their own time. Initially introduce the idea and by end of the year have full integration. Have the introduction in CANVAS, introductory information required is also available on CANVAS for students.

## Appendix 10 – NVivo Coding Screenshots

<input checked="" type="radio"/> Name	<input checked="" type="radio"/> Files	References
<input type="radio"/> Activities and Programs	8	33
<input type="radio"/> Simbio	1	1
<input type="radio"/> PPT	2	2
<input type="radio"/> Computer games	1	1
<input type="radio"/> CANVAS	3	5
<input type="radio"/> Non-Electronic Activity	6	7
<input type="radio"/> RT	1	1
<input type="radio"/> Poll Everywhere	1	1
<input type="radio"/> Caselt	1	2
<input type="radio"/> Respondus Lockdown	1	1
<input type="radio"/> Plickers	1	1
<input type="radio"/> POGIL	1	1
<input checked="" type="radio"/> Name	<input checked="" type="radio"/> Files	References
<input type="radio"/> Intro to BL	8	16
<input type="radio"/> Efficiency	3	3
<input type="radio"/> Progression of BL	4	4
<input type="radio"/> Consistency	1	1
<input checked="" type="radio"/> Name	<input checked="" type="radio"/> Files	References
<input type="radio"/> Adapting to BL	8	33
<input type="radio"/> Balance	1	1
<input type="radio"/> Independence	2	4
<input type="radio"/> Students improve over time	3	3
<input type="radio"/> Less user friendly	1	1
<input type="radio"/> Helpful	1	1
<input type="radio"/> Improved accessibility	1	1
<input type="radio"/> Physical room design	4	4
<input type="radio"/> online lectures	1	1
<input type="radio"/> Encourage use of BL	1	1
<input type="radio"/> Tech unhelpful	2	5